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PENNSYLVANIA GEOLOGICAL PUBLICATIONS



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF INTERNAL AFFAIRS
John K. Tabor, Secretary
TOPOGRAPHIC AND GEOLOGIC SURVEY
Arthur A. Socolow, State Geologist

PENNSYLVANIA STATE LIBRARY

PUBLICATIONS ON THE GEOLOGY OF PENNSYLVANIA

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Pennsylvania Department of Internal Affairs
Bureau of Topographic and Geologic Survey

United States Geological Survey
United States Bureau of Mines

NOVEMBER 1967

This list is being sent in response to your request of

To find the numbers of the reports covering the topic in which you are interested, refer to the index listing of reports in the back of this pamphlet. Publications are indexed by county or by commodity. Before ordering a publication, refer to the list of publications to find the title, description, and price of the item in which you are interested, and whether or not the publication is in print.

In ordering publications or maps, please follow the instructions on pages 3 and 4 to avoid needless delay in processing your order.

Should you desire additional information, the Topographic and Geologic Survey will be glad to assist you in any manner.

Very truly yours,

John K. Tabor
Secretary of Internal Affairs

Arthur A. Socolow
State Geologist

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HOW TO OBTAIN TOPOGRAPHIC MAPS OF PENNSYLVANIA

Topographic maps of Pennsylvania are prepared by the United States Geological Survey in cooperation with the Bureau of Topographic and Geologic Survey. Persons wishing to know the names and scales of topographic maps which are available for Pennsylvania may obtain an **Index to Topographic Mapping in Pennsylvania** free on request from either:

Pennsylvania Geological Survey
Department of Internal Affairs
Harrisburg, Pa. 17120

Or Map Information Service
U. S. Geological Survey
Washington, D. C. 20242

Topographic maps may be purchased from the U. S. Geological Survey by addressing the request to:

Washington Distribution Center
Geological Survey
1200 S. Eads Street
Arlington, Va. 22202

On such orders, customers should state the name of the map as well as the type of map desired and are urged to use order blanks supplied with the Index to Topographic Mapping in Pennsylvania mentioned above. Orders must be accompanied by cash, check, or money order in the exact amount. Stamps will not be accepted as payment.

At slightly higher costs, maps may be purchased across the counter at the agents in Pennsylvania listed below:

ALLENTOWN
Nestor Sporting Goods

BETHLEHEM
H. M. Paul & Son

BRADFORD
Francis J. Talerico

HANOVER
J. W. Fischer & Co.

HARRISBURG
Camp Hill Distributors

HAWLEY
J. Vance Hunt & Son

HAZLETON
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JACOBUS
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JOHNSTOWN
Sterling Office & School Supply

LANCASTER
L. B. Herr & Son

LEWISTOWN
Aurand's

MEADVILLE
Hunter's News

MILFORD
Sportsmen's Rendezvous

MILLHEIM
Mensch's Jewelry and Sporting Goods

MORRIS
Cameron's Store

PHILADELPHIA
J. L. Smith Co.

PITTSBURGH
Pen-O-Wes Map Co.
J. R. Weldin Co.

READING
William C. Hintz, Inc.

SAINT MARYS
Smith Sport Store

SAYLORSBURG
Pocono Blueprint Service

SCRANTON
Deemer & Co.

WILKES-BARRE
Deemer & Co.

WILLIAMSPORT
Plankenhorn Stationery Co.

<p>IMPORTANT! READ INSTRUCTIONS BELOW BEFORE ORDERING</p>
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HOW TO ORDER PUBLICATIONS

PENNSYLVANIA GEOLOGICAL SURVEY

Publications of the Pennsylvania Geological Survey are obtained from two places:
If the publication is **free**, write to:

Pennsylvania Geological Survey
Department of Internal Affairs
Harrisburg, Pa. 17120

If there is a charge for the publication, it can be obtained **only** from:

Capitol Book Store
54 Main Capitol Bldg.
Harrisburg, Pa. 17125

Enclose the cost of the publication with the order **plus 5% State Sales Tax if the publication is to be mailed to a Pennsylvania address**. The sales tax is computed as follows: Less than 10c, no tax; 11c to 20c, 1c; 21c to 40c, 2c; 41c to 60c, 3c; 61c to 80c, 4c; 81c to \$1.00, 5c. For tax over \$1.00 add 5c for each dollar plus an amount as indicated by the preceding schedule for portions over an even dollar.

Send cash, money order, or check payable to the **Commonwealth of Pennsylvania**. Stamps will not be accepted as payment.

U.S. GEOLOGICAL SURVEY and U. S. BUREAU OF MINES

Requests should be sent to the addresses below with payment in the form of cash, check, or money order. Order as follows:

Folios, maps, and charts at the indicated cost from

U. S. Geological Survey
1200 S. Eads Street
Arlington, Va. 22202

Reports of Investigations free from

U. S. Bureau of Mines
4800 Forbes Avenue
Pittsburgh, Pa. 15213

All other reports at the indicated cost from

Superintendent of Documents
U. S. Government Printing Office
Washington, D. C. 20402

THE GEOLOGICAL SURVEYS OF PENNSYLVANIA

There have been four geological surveys of Pennsylvania and four resulting series of publications:

First Survey, 1836-1854; Publications—6 annual reports, 2 quarto-volumes, and a state geologic map.

Second Survey, 1874-1887; Publications—81 volumes, 35 atlases, and a grand atlas.

Third (Commission) Survey, 1899-1919; Publications—6 biennial reports and 12 economic reports listed in this pamphlet.

Fourth Survey, 1919——: Publications listed in this pamphlet (fourth series).

All reports of the first three geological surveys and some of the reports of the present (fourth) survey are out-of-print. These reports are available for consultation in many libraries.

SOURCES OF OUT-OF-PRINT REPORTS

The library of the Pennsylvania Geological Survey in Harrisburg is open for public use and contains all previous Pennsylvania Survey reports, as well as most of the U. S. Geological Survey, U. S. Bureau of Mines, and other governmental and institutional reports.

Many reports appearing in this list of publications are marked with an asterisk (*) indicating that they are out-of-print and no longer available for distribution.

Out-of-print reports are available for study in many libraries throughout the state, particularly those in larger cities and at colleges.

For the convenience of persons wishing to obtain copies of out-of-print reports of the Pennsylvania Geological Survey and the U. S. Geological Survey, listed below are a number of book dealers known to stock such reports.

Boston, Mass. 02115.....	J. S. Canner & Co.	909 Boylston St.
Brooklyn 21, N. Y.....	Central Book Co., Inc.....	850 DeKalb Ave.
Cincinnati, Ohio 45202....	Ohio Book Store.....	544 Main St.
Denver, Colo. 80202.....	Collectors Center.....	1640 Arapahoe St.
Lakeville, Conn. 06039....	Geological Book Center....	Box 512
LaPlata, Md.....	Samuel Ward.....	
Los Angeles, Cal. 90037...	John Q. Burch.....	1584 Vernon Ave.
Los Angeles, Cal. 90057...	Walter J. Johnson, Inc.....	1901 Eighth St.
New York 10003.....	Stechert-Hafner, Inc.....	31 E. 10th St.
	Walter J. Johnson, Inc.....	111 5th Ave.
New York 10010.....	Alfred Jaeger, Inc.....	115 E. 23rd St.
Philadelphia, Pa. 19107...	Leary, Stuart Co.....	9 S. 9th St.
Philadelphia, Pa. 19106...	G. H. Arrow.....	218 S. 4th St.
Schenectady, N. Y. 12305..	James C. Howgate.....	128 S. Church St.
Seattle, Wash. 98140.....	Shorey Book Store.....	813 Third St.
Washington, D. C. 20004..	W. H. Loudermilk.....	1418 F St. NW



LIST OF PUBLICATIONS

PENNSYLVANIA GEOLOGICAL SURVEY

Fourth Series

Order free publications from Pennsylvania Geological Survey, Department of Internal Affairs, Harrisburg, Pa. 17120 and priced publications from Capitol Book Store, 54 Main Capitol Bldg., Harrisburg, Pa. 17125.

ATLAS SERIES Map scale 1:62,500 (1" = approx. 1 mile) unless stated.

A	5	New Castle quadrangle , by F. W. DeWolf. 1929. 238 p., 17 figs., 18 pls. including 1 topographic and 4 geologic maps	\$1.00
A	27	Pittsburgh quadrangle , by M. E. Johnson. 1928. 236 p., 28 figs., 33 pls. including 1 topographic and 3 geologic maps	1.00
A	36	Freeport quadrangle , by H. H. Hughes. 1933. 272 p., 72 figs., 10 pls. including 1 topographic and 2 geologic maps	1.75
*A	37	Greensburg quadrangle , by M. E. Johnson. 1926. 162 p., 25 figs., 13 pls. including 1 topographic and 3 geologic maps	*
A	48	Donegal quadrangle , by M. N. Shaffner. 1963. 116 p., 16 figs., 4 pls. including geologic map and cross section	3.20
*A	54	Brookville quadrangle , by C. K. Graeber, R. M. Foose, and M. N. Shaffner. 1942. 136 p., 14 figs., 16 pls. including 1 topographic and 3 geologic maps	*
A	55	Smicksburg quadrangle , by M. N. Shaffner. 1947. 300 p., 103 figs., 11 pls. including 1 topographic, 1 geologic, and 1 mineral resources maps	2.00
A	57	New Florence quadrangle , by M. N. Shaffner. 1958. 165 p., 16 figs., 13 pls. including 1 geologic and mineral resources map . . .	4.80
*A	65	Punxsutawney quadrangle , by G. H. Ashley. 1926. 145 p., 26 figs., 6 pls. including 1 topographic and 3 geologic maps	*
*A	75	Curwensville quadrangle , by G. H. Ashley. 1940. 140 p., 32 figs., 4 pls. including 1 topographic, 1 geologic, and 1 mineral resources maps	*
A	85ab	Houtzdale quadrangle , (northern half), by W. E. Edmunds . . . (in press)	
A	96	Tyrone quadrangle , by Charles Butts, F. M. Swartz, and Bradford Willard. 1939. 116 p., 4 figs., 14 pls. including 1 geologic map and cross sections	1.00
A	109a	McConnellsburg quadrangle , by K. L. Pierce. 1966. 120 p., 19 figs., 3 pls. including geologic map, 1 cross section sheet and 1 surficial deposits map. Scale 1:24,000 (1" = 2000')	4.15
A	119cd	Greencastle and Waynesboro quadrangles and adjoining areas , by S. I. Root. 1967 (in press)	
A	126	Mifflintown quadrangle , by R. R. Conlin and D. M. Hoskins. 1962. 46 p., 3 figs., 2 pls. including 1 geologic map and 1 cross section sheet. Scale 1:24,000 (1" = 2000')	4.75
A	127	Loysville quadrangle , by J. T. Miller. 1961. 47 p., 8 figs., 2 pls. including 1 geologic map and cross section sheet. Scale 1:24,000 (1" = 2000')	8.85
A	129a	Caledonia Park quadrangle and adjoining areas , by J. L. Fauth. 1967 (in press)	

* Out-of-print.

A 137ab	New Bloomfield quadrangle , (northern half), by J. L. Dyson. 1963. 63 p., 3 figs., geologic map and sections. Scale 1:24,000 (1" = 2000')	2.55
A 137cd	New Bloomfield quadrangle , (southern half), by J. L. Dyson . . (in press)	
A 167c	Lebanon (7½') quadrangle , by A. R. Geyer et al. 1958. Geologic map, cross sections, and text on reverse. Scale 1:24,000 (1" = 2000')	1.90
A 167d	Richland (7½') quadrangle , by Carlyle Gray et al. 1958. Geologic map, cross sections, and text on reverse. Scale 1:24,000 (1" = 2000')	1.80
A 168	Lancaster quadrangle , by Anna I. Jonas and G. W. Stose. 1930. 103 p., 10 figs., 23 pls. including 1 topographic and 1 geologic map	1.00
A 177c	Womelsdorf quadrangle , by A. R. Geyer and others. 1963. 93 p., 35 figs. and 1 geologic map. Scale 1:24,000 (1" = 2000')	2.85
*A 178	New Holland quadrangle , by Anna I. Jonas and G. W. Stose. 1926. 40 p., 7 pls. including 1 topographic and 1 geologic map	*
A 197	Boyertown quadrangle, Precambrian geology , by T. V. Buckwalter. 1958. Geologic map and text. Scale 1:24,000 (1" = 2000') . .	3.20
*A 206	Allentown quadrangle , by B. L. Miller. 1926. 195 p., 2 figs., 15 pls. including 1 topographic and 1 geologic map	*

COUNTY REPORTS Map scales 1:62,500 (1" = approx. 1 mile).

C 1	Geology and mineral resources of Adams County , by G. W. Stose. 1932. 153 p., 11 figs., 26 pls. including 1 topographic and 1 geologic map	1.00
*C 1	Part 2, Mineral resources of Adams County , by G. W. Stose. 1925. 61 p., 1 fig., 11 pls. including 1 mineral deposit map. Scale 1:250,000	*
*C 1	Part 3, Soil Survey of Adams County , by A. L. Patrick and H. H. Bennett. 1924. 43 p. and soil map	*
C 9	Geology and mineral resources of Bucks County , by Bradford Willard et al. 1959. 263 p., 39 figs., 23 pls. including 1 topographic and 1 geologic map	7.25
C 26	Geology and mineral resources of Fayette County , by W. O. Hickok and F. T. Moyer. 1940. 530 p., 146 figs., 1 topographic, 1 geologic, and 1 coal and surface structure maps	3.25
C 30	Geology and mineral resources of Greene County , by R. W. Stone. 1932. 175 p., 56 figs., 3 pls. including 1 topographic and 1 geologic map	1.00
C 39	Lehigh County, geology and geography , by B. L. Miller et al. 1942. 492 p., 17 figs., 39 pls. including 1 topographic and mine map and 1 geologic map	3.30
C 48	Northampton County, geology and geography , by B. L. Miller, D. M. Fraser, and R. L. Miller. 1939; 2nd printing, 1965. 496 p., 36 figs., 29 pls. including geologic map	5.10
C 56a	Geology and mineral resources of southern Somerset County , by N. K. Flint. 1965. 267 p., 55 figs., 13 pls. including geologic map and coal reserves maps (hard bound)	6.75
C 67	Geology and mineral resources of York County , by G. W. Stose and Anna I. Jonas. 1939. 195 p., 14 figs., 38 pls. including geologic map	2.25

* Out-of-print.

EDUCATIONAL SERIES

ES 1	Common rocks and minerals of Pennsylvania , by D. M. Lapham and A. R. Geyer. 1962. 22 p., 25 figs.	free
ES 2	Common fossils of Pennsylvania , by D. M. Hoskins. 1962. 20 p., 6 figs., 3 pls.	free
ES 3	Ground water , by R. C. Bolger. 1962. 11 p., 7 figs.	free
ES 4	Pennsylvania geology summarized , by Bradford Willard. 1962. 17 p., 3 figs., 1 pl.	free
ES 5	Geology and the Gettysburg Campaign , by Andrew Brown. 1962	free
ES 6	Pennsylvania and the Ice Age , by V. C. Shepps. 1962	free
ES 7	Coal in Pennsylvania , by E. F. Koppe. 1967	(in press)
ES 8	Oil and gas in Pennsylvania , by W. S. Lytle and W. R. Wagner. 1967	(in press)

GENERAL GEOLOGY REPORTS

*G 1	A syllabus of Pennsylvania geology and mineral resources , by G. H. Ashley. 1931. 160 p., 118 figs., 2 pls. including a small colored geologic map	*
G 2	Meteorites found in Pennsylvania , by R. W. Stone. 1932. Revised edition by Eileen Starr. 1967. 35 p., 18 figs.	0.40
*G 3	Pennsylvania caves , by R. W. Stone. 1932. 143 p., 68 figs. ...	*
*G 4	Devonian faunas in Pennsylvania , by Bradford Willard. 1932. 43 p.	*
G 5	Correlation of the Ordovician limestone at Salona, Clinton County , by Lawrence Whitcomb. 1932. 16 p., 1 pl.	0.15
*G 6	Scenery of Pennsylvania , by G. H. Ashley. 1933. 91 p., 90 figs., 1 pl.	*
G 7	Glacial deposits outside the Wisconsin terminal moraine in Pennsylvania , by Frank Leverett. 1934; 2nd printing, 1958. 140 p., 38 figs., 1 pl.	1.00
*G 8	Guidebook: A Paleozoic section in south-central Pennsylvania , by Bradford Willard and A. B. Cleaves. 1938. 38 p., 10 pls.	*
G 9	The geomorphology of the Wyoming-Lackawanna region, Pennsylvania , by H. I. Itter. 1938; 2nd printing, 1959. 82 p., 46 figs., 9 pls.	0.70
G 10	Recent geological history of the Delaware Valley below the Water Gap , by Freeman Ward. 1938; 2nd printing, 1962. 76 p., 13 figs., 10 pls.	0.55
*G 11	Guidebook: A Paleozoic section at Delaware Water Gap , by Bradford Willard. 1938. 35 p., 9 figs.	*
*G 12	Guidebook: Highway geology from Philadelphia to Pittsburgh , by Bradford Willard. 1939. 42 p., 17 pls.	*
*G 13	Guide to the geology from Dauphin to Sunbury , by Bradford Willard. 1939. 24 p., 7 pls.	*
*G 14	Guide to the geology of the upper Schuylkill Valley , by Bradford Willard. 1938. 23 p., 8 figs., 1 pl.	*
*G 15	Guidebook to the geology near Reading , by Bradford Willard and D. M. Fraser. 1939. 27 p., 11 figs.	*
*G 16	Guide to places of geologic interest in the Lehigh Valley , by B. L. Miller. 1939. 47 p., 24 figs.	*

* Out-of-print.

G 17	Guidebook to the geology about Pittsburgh , by Henry Leighton. 1939; 2nd edition, 1947. 35 p., 13 figs.	0.25
G 18	Number assigned, but report not published.	
*G 19	The Devonian of Pennsylvania , by Bradford Willard, F. M. Swartz, and A. B. Cleaves. 1939. 450 p., 95 figs., 32 pls.	*
*G 20	Guidebook to the geology of the Pennsylvania Turnpike , by A. B. Cleaves and G. H. Ashley. 1942. 41 p., 23 figs., 14 pls. (replaced by G 24)	*
G 21	Subsurface Trenton and sub-Trenton rocks in Ohio, New York, Pennsylvania, and West Virginia , by Chas. R. Fettke. 1948. 35 p., 7 figs. (reprinted from Bull. AAPG, vol. 32, no. 8)	0.20
G 22	Trenton and sub-Trenton of outcrop areas in New York, Pennsylvania, and Maryland , by F. M. Swartz. 1948. 102 p., 26 figs. (reprinted from Bull. AAPG, vol. 32, no. 8)	0.35
G 23	Pleistocene terraces of the Susquehanna River , by L. C. Peltier. 1949. 152 p., 49 figs.	2.35
G 24	Guidebook to the geology of the Pennsylvania Turnpike from Carlisle to Irwin , by A. B. Cleaves and R. C. Stephenson. 1949. 72 p., 7 figs., 28 pls. including geologic strip maps	0.50
*G 25	Subsurface projection of Cambro-Ordovician sediments in the Pennsylvania-New York region , by F. M. Swartz. 1950. 18 p., 15 figs. (reprinted from Producers Monthly)	*
G 26	The Pennsylvania Mill Creek limestone in Pennsylvania , by Minchen Ming Chow. 1951. 36 p., 3 figs., 4 pls.	0.75
G 27	Structure contour maps of the plateau region of north-central and western Pennsylvania , by Chas. R. Fettke. 1954. 45 p., 3 pls. including surface and subsurface structure maps. Scales 1:250,000 and 500,000 (1" = approx. 4 & 8 miles)	1.70
G 28	Upper Cambrian fossils of Bucks County, Pennsylvania , by B. F. Howell. 1957. 39 p., 1 fig., 5 pl.	0.75
G 29	Guide to the highway geology from Harrisburg to Bald Eagle Mountain , by Bradford Willard et al. 1958. 38 p., 2 figs., 8 pls.	0.25
G 30	The geology of Hidden Valley Boy Scout Camp area , by J. T. Miller. 1957. 42 p., 16 figs., 2 pls.	free
G 31	The Annville, Myerstown, and Hershey Formations of Pennsylvania , by C. E. Prouty. 1959. 47 p., 19 figs., 1 pl., 9 measured sections	0.30
G 32	Glacial geology of northwestern Pennsylvania , by V. C. Shepps et al. 1959. 59 p., 11 figs., 1 geologic map. Scale 1:125,000 (1" = approx. 2 miles)	1.30
G 33	Mineral collecting in Pennsylvania , by D. M. Lapham and A. R. Geyer. 2nd edition, 1965. 148 p., 33 figs.	0.50
G 34	Bibliography of Pennsylvania Geology to 1949 , by H. R. Cramer. 1961. 453 p., 1 fig.	5.75
G 35	Guide to the geology of Cornwall, Pennsylvania , by Carlyle Gray and D. M. Lapham. 1961. 18 p., 5 figs., 2 pls.	0.30
G 36	Stratigraphy and Paleontology of the Bloomsburg Formation of Pennsylvania and adjacent states , by D. M. Hoskins. 1961. 125 p., 6 figs., 8 pls.	2.75
G 37	Stratigraphy of the Beekmantown Group in southeastern Pennsylvania , by J. P. Hobson, Jr. 1963. 331 p., 27 figs., 22 pls., 15 tables	3.35

G 38	Lithostratigraphy of the Middle Ordovician Salona and Coburn Formations in central Pennsylvania , by R. R. Thompson. 1963. 154 p., 15 figs., 12 pls., 7 tables	1.55
G 39	Symposium on Middle and Upper Devonian stratigraphy of Pennsylvania and adjacent states , V. C. Shepps, editor. 1963. Collected papers by 25 authors. 301 p., 82 figs.	2.05
G 40	Fossil collecting in Pennsylvania , by D. M. Hoskins. 1964. 126 p., 109 figs., 11 pls.	0.45
G 41	Guidebook to the geology of the Philadelphia area , by B. K. Goodwin. 1964. 189 p., 126 figs.	0.75
G 42	Bibliography of Pennsylvania geology, 1950-1959 , by H. R. Cramer. 1965. 237 p. (hard bound)	2.30
G 43	Provenance, dispersal and depositional environments of Triassic sediments in the Newark-Gettysburg Basin , by J. D. Glaeser. 1966. 168 p., 22 figs., 9 pls.	6.25
G 44	Geology of the carbonate rocks of Dauphin County, Pennsylvania , by D. B. MacLachlan. 1967. 168 p., 25 figs., geologic map and cross sections. Scale 1:24,000 (1" = 2000')	3.75
G 45	Structure of the Jacksonburg Formation in Northampton and Lehigh Counties, Pennsylvania , by W. C. Sherwood. 1964. 64 p., 34 figs., 1 geologic map. Scale 1:62,500 (1" = approx. 1 mile)	1.95
G 46	Geologic investigations of the Pennsylvania Piedmont (collected reprints). 1964. 47 p., 22 figs., 6 pls.	0.35
G 47	Stratigraphy of the Lower Ordovician Nittany Dolomite in central Pennsylvania , by A. R. Spelman. 1966. 187 p., 10 figs., 24 pls.	2.35
G 48	Stratigraphy and paleontology of the Mahantango Formation in south-central Pennsylvania , by R. L. Ellison. 1965. 298 p., 8 figs., 19 pls.	2.40
G 49	Stratigraphy of the Cambrian to Middle Ordovician rocks of central and western Pennsylvania , by W. R. Wagner. 1966. 156 p., 10 figs., 7 pls.	3.75
G 50	Guide to the bedrock exposures near Horse Shoe Curve, Altoona, Pennsylvania , by F. M. Swartz. 1965. 56 p., 7 figs.	0.35
G 51	Stratigraphy of the Devonian Trimmers Rock Formation in eastern Pennsylvania , by L. A. Frakes. 1967. 208 p., 68 figs., 1 pl.	2.70
G 52	Stratigraphy of the Lower Ordovician Axemann Limestone in central Pennsylvania , by J. A. Lees. 1967 (in press)	
G 53	A lithostratigraphic, petrographic, and chemical investigation of the Lower Middle Ordovician carbonate rocks of central Pennsylvania , by Morris Rones. 1967 (in press)	
G 54	Stratigraphy, structure and sedimentary patterns in the Upper Devonian of Bradford County , by Donald Woodrow. 1967 . . . (in press)	
G 56	Geology and land use in eastern Washington County , by B. Kent and S. Schweinfurth. 1968 (in press)	

INFORMATION CIRCULARS

*IC 1	Reconnaissance data on geologic structures in southern Cameron County, Pennsylvania (replaced by M 36)	*
*IC 2	Industrial minerals in Pennsylvania in 1951 , by R. C. Stephenson. 6 p.	*

* Out-of-print.

*IC 3	Subsurface structure of the Leidy Gas Field, Clinton County, Pennsylvania , by H. V. Gouse. 1952. 4 p. (publication not distributed; originally published in Pa. Dept. Internal Affairs Monthly Bulletin, v. 20, no. 7, p. 18-21)	*
IC 4	Elevations in Pennsylvania , by Anne C. Sangree. 1954; 2nd printing, 1964, 19 p.	free
*IC 5	Relation of stratigraphy and structure to uranium occurrences near Mauch Chunk, Pennsylvania , by J. L. Dyson. 1955. 11 p., 1 fig.	*
IC 6	The mineral industry of Pennsylvania in 1952 , by R. H. Mote and Alvin Kaufman. 1955. 32 p.	free
IC 7	The ground water program for Pennsylvania, 1956 , 14 p.	free
IC 8	The mineral industry of Pennsylvania in 1953 , by Alvin Kaufman. 1956. 26 p.	free
IC 9	The mineral industry of Pennsylvania in 1954 , by R. D. Thomson. 1957. 34 p.	free
*IC 10	Ground Water . 1958 (replaced by ES 3)	*
IC 11	The mineral industry of Pennsylvania in 1955 , by R. D. Thomson. 1958. 40 p.	free
IC 12	The mineral industry of Pennsylvania in 1956 , by R. D. Thomson. 1958. 42 p.	free
IC 13	Corundum mining in the Piedmont Province of Pennsylvania , by Nancy C. Pearre. 1958; 2nd printing, 1964. 11 p., 1 fig.	free
IC 14	The history of chromite mining in Pennsylvania and Maryland , by Nancy C. Pearre and Allen Heyl. 1959; 2nd printing, 1964. 23 p., 9 figs.	free
*IC 15	The mineral industry of Pennsylvania in 1957 , by R. D. Thomson and Mary E. Otte. 1959. 39 p.	*
IC 16	Catalogue of deep well samples and geophysical logs to January 1, 1959 , by W. R. Wagner. 1959. 84 p., 1 fig., 1 pl.	0.35
IC 17	Geology of a barite occurrence, Fulton County, Pennsylvania , by A. A. Socolow. 1959. 4 p.	free
IC 18	Geologic interpretation of aeromagnetic map of the Valley Forge quadrangle , by A. A. Socolow. 1959	free
IC 19	Geologic interpretation of aeromagnetic map of the Norristown quadrangle , by A. A. Socolow. 1959	free
IC 20	Geologic interpretation of aeromagnetic map of the Malvern quadrangle , by A. A. Socolow. 1959	free
IC 21	Geologic interpretation of aeromagnetic map of the West Chester quadrangle , by A. A. Socolow. 1959	free
IC 22	Geologic interpretation of aeromagnetic map of the Media quadrangle , by A. A. Socolow. 1959	free
IC 23	Geologic interpretation of aeromagnetic map of the East Greenville quadrangle , by A. A. Socolow. 1959	free
IC 24	Geologic interpretation of aeromagnetic map of the Milford Square quadrangle , by A. A. Socolow. 1959	free
IC 25	Geologic interpretation of aeromagnetic map of the Sassamansville quadrangle , by A. A. Socolow. 1959	free
IC 26	Geologic interpretation of aeromagnetic map of the Perkiomenville quadrangle , by A. A. Socolow. 1959	free
IC 27	Geologic interpretation of aeromagnetic map of the Phoenixville quadrangle , by A. A. Socolow. 1959	free

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*IC 36	The mineral industry of Pennsylvania in 1958 , by R. D. Thomson et al. 1959. 47 p.	*
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IC 51	The mineral industry of Pennsylvania in 1962 , by C. C. Yeloushan et al. 1964. 39 p., 1 fig., 11 tables	free
IC 52	Interpretation of an aeromagnetic survey in western Pennsylvania and parts of eastern Ohio, northern West Virginia and western Maryland , by M. E. Beck, Jr. and R. E. Mattick. 1964. 10 p., 2 figs.	free

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IC 53	The mineral industry of Pennsylvania in 1963 , by J. R. Kerr. 1965. 42 p., 1 fig., 13 tables	free
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IC 58	The mineral industry of Pennsylvania in 1965 , by Charles C. Yeloushan. 1967. 31 p., 1 fig., 10 tables	free

MAPS

# 1	Geologic map of Pennsylvania . 1960. Scale 1:250,000 (1" = 4 miles). Supersedes Geologic Map of Pennsylvania, 1932	3.75
# 2	Coal fields of Pennsylvania . 1929. Scale 1:380,160 (1" = 6 miles)	0.50
# 3	Oil and gas fields of Pennsylvania , by W. S. Lytle and V. Fairall. 1964. Scale 1:316,800 (1" = 5 miles) on reverse side Principal crude oil and product pipelines of Pennsylvania and Principal natural gas pipelines of Pennsylvania, by W. S. Lytle and L. A. Heeren. 1964. Scale 1:633,600 (1" = 10 miles). (Replaces 1953 edition by W. S. Lytle and L. A. Heeren which replaced the 1932 edition originally published as Pl. 1 of M 19)	1.70
*# 4	Undrilled areas of Sheffield quadrangle , by L. S. Matteson. 1946. Scale 1:62,500 (1" = approx. 1 mile)	*
*# 5	Undrilled areas of Kinzua and northern Kane quadrangles , by Chas. F. Fettke. 1946. Issued in two sheets, N. Kinzua; S. Kinzua and Kane. Scale 1:62,500 (1" = approx. 1 mile)	*
*# 6	Farm line map of Warren quadrangles, showing undrilled areas , by S. H. Cathcart and W. H. Seifert. 1947. Scale 1:31,680 (1" = ½ mile)	*
# 7	9" x 12" Geologic map of Pennsylvania (Color) . 1962	free
*# 8	Topographic map of Bucks County , scale 1:62,500 (1" = approx. 1 mile)	*
# 9	Subsurface structure of the plateau region of north-central and western Pennsylvania on top of the Oriskany Formation , by A. S. Cate. 1962. 1 large map. Scale 1:250,000 (1" = approx. 4 miles)65
#10	9" x 12" Oil and gas fields map of Pennsylvania (Color)	free
#11	9" x 12" Coal fields of Pennsylvania map (Color)	free
#12	Map of the Mercer clay and adjacent units in Clearfield, Centre, and Clinton Counties, Pennsylvania . 1964. Scale 1:85,040 (1" = 1.5 miles)	1.55
#13	8½" x 11" Physiographic provinces map of Pennsylvania (Color)	free
#14	Surface structure map of parts of Lycoming, Clinton, Tioga, and Potter Counties, Pennsylvania , by George W. Colton. 1967. Scale 1:48,000 (1" = 4000') (in press)	

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MINERAL RESOURCE REPORTS

*M 1	Oil and gas fields of Pennsylvania , Vol. 1, Introduction , by G. H. Ashley and J. F. Robinson. 1922. 79 p., 9 figs., 4 pls.	*
*M 2	Oil resources in coals and carbonaceous shales of Pennsylvania , by Chas. R. Fettke. 1923. 119 p., 16 figs., 6 pls.	*
*M 3	Silica refractories of Pennsylvania , by E. S. Moore and T. G. Taylor. 1924. 100 p., 10 figs., 16 pls.	*
*M 4	Bituminous coal losses and mining methods in Pennsylvania , by J. D. Sisler. 1924. 216 p., 29 figs., 1 pl.	*
*M 5	Lead and Zinc ores of Pennsylvania , by B. L. Miller. 1924. 91 p., 7 figs., 5 pls.	*
M 6	Bituminous coal fields of Pennsylvania.	
	Part I. General information on coal , by G. H. Ashley. 1928. 241 p., 32 figs., 17 pls.	0.50
	Part II. Detailed description of coal fields , by J. D. Sisler. 1926; 3rd printing, 1961. 511 p., 152 figs., 14 pls.	2.25
	Part III. Bituminous coal resources , by J. F. Reese and J. D. Sisler. 1928. 153 p., 4 pls.	0.25
	Part IV. Analyses of bituminous coal , by U. S. Bureau of Mines. 1925. 268 p., 1 pl.	0.50
*M 7	Limestones of Pennsylvania , by B. L. Miller. 1925. 368 p., 7 figs., 15 pls. (replaced by M 20)	*
*M 8	Anthracite losses and reserves in Pennsylvania , by D. G. Ashmead. 1926. 71 p., 13 figs., 1 pl.	*
*M 9	Slate in Northampton County , by C. H. Behre, Jr. 1927. 312 p., 49 figs., 36 pls. (replaced by M 16)	*
*M 10	Fire clays of Pennsylvania , by J. B. Shaw. 1928. 69 p., 6 figs. ..	*
*M 11	Molding sands of Pennsylvania , by R. W. Stone and American Foundrymen's Association. 1928. 94 p., 10 figs., 21 pls.	*
M 12	Anthracite culm and silt , by J. D. Sisler, Thomas Frazer, and D. C. Ashmead. 1928. 259 p., 21 figs., 34 pls.	0.50
*M 13	Feldspar in Pennsylvania , by R. W. Stone and H. Herbert Hughes. 1931. 60 p., 6 figs., 20 pls.	*
*M 14	Magnetite deposits of French Creek, Pennsylvania , by L. L. Smith. 1931. 52 p., 5 figs., 5 pls.	*
M 15	Building stones of Pennsylvania , by R. W. Stone. 1932. 316 p., 164 figs., 4 pls.	1.25
M 16	Slate in Pennsylvania , by C. H. Behre, Jr. 1933. 400 p., 89 figs., 70 pls., including 5 colored maps	2.75
M 17	Clay and shale resources of southwestern Pennsylvania , by Henry Leighton. 1933. 190 p., 16 figs., 1 colored map	0.75
*M 18	The minerals of Pennsylvania.	
	*A. Introduction , by George H. Ashley. 1933. 15 p.	*
	*B. Iron ores of Pennsylvania , by W. O. Hickok. 1939; revised reprinting, 1940. 21 p.	*
	*C. Nonmetallic minerals , by R. W. Stone. 1939; reprinted, 1940. 50 p., 1 fig.	*

*M 19	Contributions to oil and gas geology of western Pennsylvania , by J. D. Sisler et al. 1933. 94 p., 1 fig., 22 pls.	*
M 20	Limestones of Pennsylvania , by B. L. Miller. 1934. 729 p., 34 figs., 41 pls.	2.00
M 21	Bradford oil field, Pennsylvania and New York , by Chas. R. Fettke. 1938. 454 p., 113 figs., 21 pls.	3.00
M 22	Oil geology of the Titusville quadrangle, Pennsylvania , by P. A. Dickey. 1941; 3rd printing 1967. 87 p., 13 figs., 6 pls.	1.00
M 23	Clay and shale resources in Pennsylvania , by Henry Leighton. 1941; 2nd printing, 1959. 245 p., 4 figs., 1 colored map	1.25
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M 26	Iron-Manganese ore deposit at White Rocks, Cumberland County, Pennsylvania , by R. M. Foose. 1946. 35 p., 3 figs., 14 pls.	0.75
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M 41	History, present status, and future possibilities of secondary recovery operations in Pa. , by Wm. S. Lytle. 1960. (Reprinted from Interstate Oil Compact Commission Bull., Vol. 1, No. 2, Dec. 1959) p. 28-42, 7 figs.	free
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M 50	Atlas of Pennsylvania's mineral resources , a 13½" x 18" loose leaf folio with hard cover.	
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	Part 1. Supplement, Limestones and dolomites of Pennsylvania , by G. Deasy and others. 1967. 83 p., 109 figs.	1.00
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M 54	Oil and gas geology of the Amity and Claysville quadrangles , by W. McGlade. 1967 (in press)	
M 55	Petrography of coal in the Houtzdale quadrangle , by E. F. Koppe. 1967 (in press)	
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M 57	Geology of the Red Valley sandstone in Forest and Venango counties , by Dana Kelley. 1967	1.25
M 58	Salt deposits of the Salina Group in Pennsylvania , by W. Fergusson and B. Prather. 1967 (in press)	

MISCELLANEOUS PAPERS

*1	The Story of the Survey , by G. H. Ashley. 1920. 20 p.	*
*2	The Work of the Survey, 1919-1922 , by G. H. Ashley. 1923. 18 p.	*
*3	The Pennsylvania Geological Survey, Administrative Report , by G. H. Ashley. 1931. 38 p.	*

- *4 **The resources of Pennsylvania in a nutshell**, by G. H. Ashley. 1931. 15 p. *
- *5 **Fifteen years, Sept. 1, 1919, to Sept. 1, 1934**, by G. H. Ashley. 1934. 8 p. *
- *6 **A quarter century of progress**, by G. H. Ashley. 1944. 10 p. .. *

PROGRESS REPORTS

- *PR 1-106 Mimeographed series of reports, all out of print, many superseded. See G 1 for partial list *
- *PR 106 **Gas and oil in Potter County, Pa.**, by S. H. Cathcart. 1934. 31 p., 3 figs. *
- *PR 107 **Gas in Tioga County, Pennsylvania**, by S. H. Cathcart and T. H. Myers. 1934. 42 p., 5 figs. *
- *PR 108 **Geologic structure in the plateaus region of northern Pennsylvania and its relation to the occurrence of gas in the Oriskany sand**, by S. H. Cathcart. 1934. 24 p., 2 figs. (replaced by PR 138) *
- *PR 109 **Possibility of finding gas in Cameron County, Pennsylvania**, by S. H. Cathcart. 1934. 16 p., 3 figs. *
- *PR 110 **Possible occurrence of gas in the Oriskany sand of Elk County, Pennsylvania**, by S. H. Cathcart. 1934. 21 p., 3 figs. *
- *PR 111 **Possibility of finding gas in the Oriskany sand of McKean County, Pennsylvania**, by S. H. Cathcart. 1934. 13 p., 3 figs. *
- *PR 112 **White clays of Pennsylvania**, by Henry Leighton. 1934. 19 p., 12 figs. (See M 17 and M 23) *
- *PR 113 **Pennsylvania geology summarized**, by Bradford Willard. 1935. (reprinted as ES 4) *
- *PR 114 **Subsurface stratigraphy of northwestern Pennsylvania and a resume of gas and oil possibilities of deeper sands**, by Charles R. Fettke. 1935. 23 p., 4 figs. *
- *PR 115 **Structure and stratigraphy of Fayette County** (prelim. rept.), by Forrest T. Moyer. 1937. 20 p., 1 map. (See C 26) *
- *PR 116 **Bradford oil field** (prelim. rept.), by Chas. R. Fettke. 1937. 17 p., 5 figs. (See M 21) *
- *PR 117 **Supplementary record of "deep sand" wells in Pennsylvania**, by S. H. Cathcart. 1937. 27 p., 5 figs. *
- PR 118 **Geology of the oil and gas fields of the Tidioute quadrangle** (prelim. rept.), by S. H. Cathcart, R. E. Sherrill, and L. S. Matteson. 1938. 15 p., 7 maps, 1 fig., 181 well records free
- *PR 119 **The Canadian System**, by Geo. H. Ashley. 1938. 7 p. *
- *PR 120 **Structure and stratigraphy of the Brookville quadrangle** (prelim. rept.), by Chas. K. Graeber. 1939. 9 p., 4 figs., including geologic structure map. (See A 54) *
- *PR 121 **Structure and stratigraphy of the Smicksburg quadrangle** (prelim. rept.), by M. N. Shaffner. 1939. 12 p., geologic structure map, columnar section, and 25 plotted well records. (See A 55) *
- PR 122 **Geology of the oil and gas fields of the Hilliards quadrangle**, by R. E. Sherrill and L. S. Matteson. 1939. 25 p., 4 maps, and 238 well records 0.15
- *PR 123 **Oil mining possibilities in Pennsylvania**, by P. A. Dickey. 1939. 31 p., 10 figs. *

*PR 124	Summit gas pool, Fayette County, Pennsylvania , by Chas. R. Fettke. 1940. 31 p., 1 fig.	*
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*PR 127	Subsurface sections across western Pennsylvania , by Chas. R. Fettke. 1941. 57 p., 1 map	0.50
*PR 128	Manganese minerals in Pennsylvania , by R. M. Foose. 1942. 22 p., 3 figs. (see M 27)	*
*PR 129	Electrical well logging in the eastern states , by P. A. Dickey. 1942. 30 p., 20 figs.	*
*PR 130	Anthracite reserves , by G. H. Ashley. 1945. 13 p.	*
*PR 131	Haskell Sand core from the Coryville pool, McKean County, Pennsylvania , by Chas R. Fettke and W. H. Seifert. 1946. 9 p., 1 fig. (a limited edition for the oil industry)	*
*PR 132	Topographic maps , by R. C. Stephenson. 1949. 20 p., 9 figs. ..	*
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*PR 134	Preliminary report, Leidy gas field and adjacent areas, Clinton County, Pennsylvania , by J. R. Ebright and A. I. Ingham. 1951. (replaced by M 34)	*
*PR 135	Oil and gas developments in Pennsylvania in 1950 , by Chas. R. Fettke. 1951. 10 p., 1 pl.	*
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*PR 137	Preliminary report, geology and mineral resources of the New Florence quadrangle , by M. N. Shaffner. 1951. (replaced by A 57)	*
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*PR 149	Geology and mineral resources of southern Somerset County , by N. K. Flint. 1956. (replaced by C 56a)	*
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*PR 154	Oil and gas developments in Pennsylvania in 1957 , by Wm. S. Lytle et al. 1958. 34 p., 4 figs., 5 pls.	*
*PR 155	Oil and gas developments in Pennsylvania in 1958 , by Wm. S. Lytle et al. 1959. 44 p., 4 figs.	*
*PR 156	Subsurface Cambro-Ordovician stratigraphy of northwestern Pennsylvania and bordering regions , by W. R. Wagner. 1961. 20 p., 1 fig., 1 pl. (replaced by G 49)	*
*PR 157	Oil and gas developments in Pennsylvania in 1959 , by Wm. S. Lytle et al. 1960. 55 p., 5 figs., 6 pls.	*
PR 158	Oil and gas developments in Pennsylvania in 1960 , by Wm. S. Lytle et al. 1961. 50 p., 5 figs., 7 pls.	free
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PR 161	The Precambrian geology of the Reading 15' quadrangle , by T. V. Buckwalter. 1963. 49 p., 2 pls. including 2-color geologic map. Scale 1:24,000 (1" = 2000')	1.75
*PR 162	Oil and gas developments in the Youngsville-Sugar Grove Field of Warren County, Pennsylvania , by W. H. Seifert and W. S. Lytle. 1963. 13 p., 3 figs., 4 tables (replaced by M 53)	*
*PR 163	Preliminary report of the oil and gas resources of the Warren 7½' quadrangle, Pennsylvania , by W. S. Lytle and L. A. Heeren. 1963. One sheet containing map, text, and tables (replaced by M 52) .	*
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PR 173	Oil and gas developments in Pennsylvania in 1966 , by W. S. Lytle et al. 1967 (in press)	
PR 174	Bedrock geology of the Waterville quadrangle, Lycoming County, Pennsylvania , by G. W. Colton. 1968 (in press)	

SPECIAL BULLETINS (13½ x 18 inches) Map scales 1:24,000 (1" = 2000') unless indicated.

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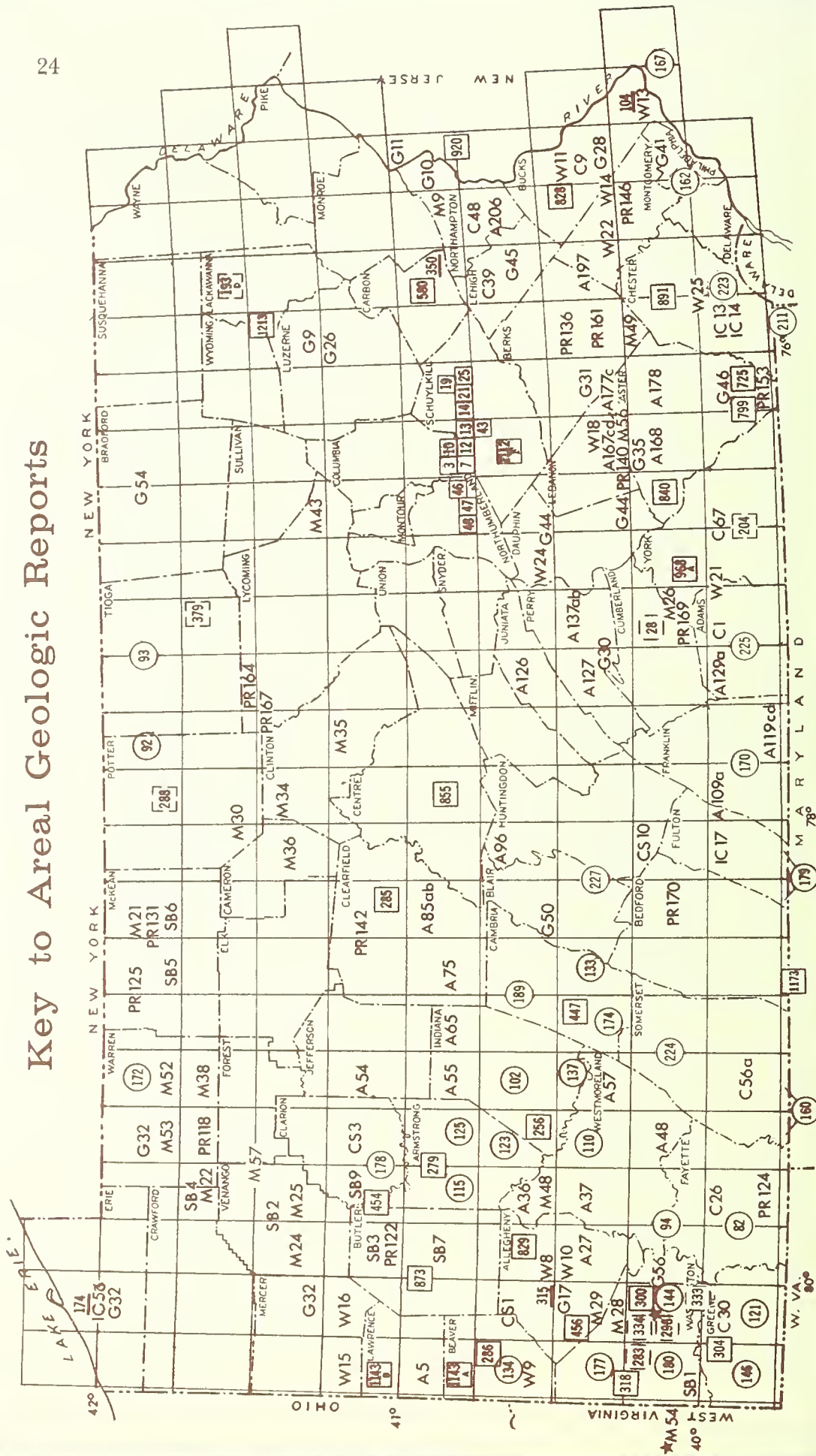
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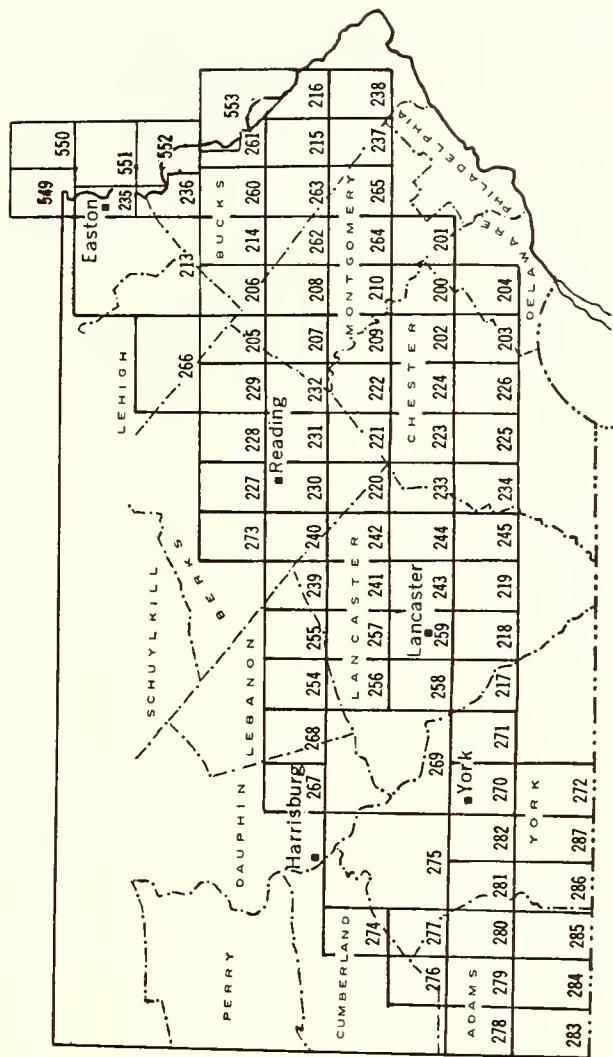
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 IC ———Information Circular
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 M ———Mineral Resource Reports
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United States Geological Survey—U. S. Geol. Survey

B ———Bulletins
 Cir ———Circular
 CI ———Coal Investigations
 F ———Folios
 GP ———Geophysical Investigations
 GQ ———Geologic Quadrangle Maps
 HA ———Hydrologic Investigations Atlas
 PP ———Professional Paper
 WS ———Water-Supply Papers

United States Bureau of Mines—U. S. Bur. Mines

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 I ———Information Circulars
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 PR139, 143, 144, 147, 150, 155; IC4, 16

CARBON

- Pa. Geol. Survey (3rd) : 4, 8, 11, 12
 Pa. Geol. Survey (4th) : G7, 19, 23, 39; M8, 11, 15, 16, 20, 23, 43, 51; W4;
 PR143, 147, 151; IC4, 5
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CENTRE

- Pa. Geol. Survey (3rd) : 8, 11, 12
 Pa. Geol. Survey (4th) : A96; G3, 19, 29, 38; M4, 5, 6, 10, 15, 20, 23, 27, 35,
 50; W5; PR143, 144, 147, 151; IC4, 16; Map 12
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CHESTER

- Pa. Geol. Survey (3rd) : 6, 8, 11
 Pa. Geol. Survey (4th) : G33, 43; M5, 11, 13, 14, 15, 18, 20, 23, 50; W2, 25;
 IC4, 13, 14, 18, 20, 21, 22, 27, 35, 37
 U. S. Geol. Survey: B725, 799, 891, 1082E, 1082K; F211, 223; PP271; GP200,
 202, 203, 204, 209, 221, 223, 224, 225, 226, 233, 234
 U. S. Bur. Mines: R4451, 4530

CLARION

- Pa. Geol. Survey (3rd) : 3, 8, 11
 Pa. Geol. Survey (4th) : A54; G39; M4, 6, 10, 15, 19, 20, 23, 31, 32, 50, 51;
 SB2, 9; W3; PR148; IC4, 16
 U. S. Geol. Survey: B454; F178
 U. S. Bur. Mines: R5231, 6261

CLEARFIELD

- Pa. Geol. Survey (3rd) : 8, 11, 12
 Pa. Geol. Survey (4th) : A65, 75, 85 A & B; M2, 4, 6, 10, 15, 20, 23, 31, 45, 51,
 55; W5; PR142, 144, 147, 150, 151, 154, 155, 157; IC4, 15; Map 12
 U. S. Geol. Survey: B285, 531D, 659; F189; WS110
 U. S. Bur. Mines: R4894, 5143, 5166, 6261

CLINTON

- Pa. Geol. Survey (3rd) : 8, 11
 Pa. Geol. Survey (4th) : G5, 19; M4, 6, 10, 15, 20, 23, 31, 34, 35, 39, 45, 50;
 W5; PR133, 134, 135, 139, 143, 144, 147, 150, 151, 154, 167, 174; IC4,
 15; Map 12

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- Pa. Geol. Survey (3rd) : 8, 11
 Pa. Geol. Survey (4th) : G4, 7, 19; M5, 8, 11, 15, 20, 23, 43, 45, 50; W4;
 PR130, 152; IC4, 15
 U. S. Geol. Survey: C13, 10, 12, 13
 U. S. Bur. Mines: R4743

CRAWFORD

- Pa. Geol. Survey (3rd) : 8, 11
 Pa. Geol. Survey (4th) : G32; M6, 11, 15, 18, 20, 22, 23, 31, 32, 45; SB4; W3;
 PR135, 139, 143, 148, 150, 151, 154, 155, 157; IC4, 15

CUMBERLAND

Pa. Geol. Survey (3rd): 8, 11

Pa. Geol. Survey (4th): A127, 137 C & D; G3, 8, 33; M11, 15, 18, 20, 23, 26, 27, 50, 51; W2; PR169; IC4

U. S. Geol. Survey: GQ28; GP274, 275, 276, 277

U. S. Bur. Mines: R4436

DAUPHIN

Pa. Geol. Survey (3rd): 8, 11

Pa. Geol. Survey (4th): A137A&B; G3, 4, 7, 8, 13, 19, 37, 39, 43, 44; M8, 15, 20, 23, 50, 51; W2, 4, 24; PR130; IC4, 45

U. S. Geol. Survey: GP267, 268, 269, 275; HA57

DELAWARE

Pa. Geol. Survey (3rd): 8, 11

Pa. Geol. Survey (4th): G33; M13, 15, 20, 23, 27; W2, 13, 25; IC13, 14, 18, 19, 21, 22

U. S. Geol. Survey: F162, 223; GP200, 201, 203, 204

ELK

Pa. Geol. Survey (3rd): 8, 11, 12

Pa. Geol. Survey (4th): M4, 6, 10, 11, 15, 18, 19, 20, 31, 32, 39, 40, 45, 50; W6; PR142, 144, 148, 150, 151, 155, 157; IC4, 15

U. S. Bur. Mines: R6261, 6917

ERIE

Pa. Geol. Survey (3rd): 8, 11

Pa. Geol. Survey (4th): G32; M11, 15, 18, 20, 23, 31, 39, 40, 45, 51; W3; PR139, 143, 144, 147, 150, 151, 157; IC4, 13, 56; WSR38

U. S. Geol. Survey: Cir 174

FAYETTE

Pa. Geol. Survey (3rd): 8, 11, 12

Pa. Geol. Survey (4th): A48; C26; G3, 19, 39; M2, 4, 5, 6, 10, 11, 15, 17, 18, 19, 20, 31, 39, 45, 50, 51; W1; PR124, 135, 144, 147, 157; IC4, 15

FOREST

Pa. Geol. Survey (3rd): 8, 11, 12

Pa. Geol. Survey (4th): G7; M4, 6, 15, 18, 19, 20, 23, 31, 32, 38, 40; W3; PR148; IC4, 15; Map 4

U. S. Geol. Survey: B531D

FRANKLIN

Pa. Geol. Survey (3rd): 8, 11

Pa. Geol. Survey (4th): A109A, 119C&D, 129A; G3, 19, 37, 38; M11, 15, 18, 20, 23, 27, 50, 51; W2; IC4

U. S. Geol. Survey: F170, 179, 225; WS110

FULTON

Pa. Geol. Survey (3rd): 8, 10, 11

Pa. Geol. Survey (4th): A109A; G19, 33, 39; M6, 15, 18, 20, 23, 27, 50, 51; W5; IC4, 17

U. S. Geol. Survey: F170, 179

GREENE

Pa. Geol. Survey (3rd): 8, 11

Pa. Geol. Survey (4th): C30; G7, 39; M2, 4, 6, 15, 17, 19, 20, 23, 31, 32; SB1; W1; PR148; IC4, 15

U. S. Geol. Survey: B304, 318; F82, 121, 146

U. S. Bur. Mines: R5143

HUNTINGDON

Pa. Geol. Survey (3rd): 8, 10, 11

Pa. Geol. Survey (4th): A96; G3, 19, 38, 39; M5, 6, 15, 18, 20, 27, 43, 50, 51; W5; PR152; IC4

U. S. Geol. Survey: F227

U. S. Bur. Mines: R4326

INDIANA

- Pa. Geol. Survey (3rd): 8, 11
 Pa. Geol. Survey (4th): A55, 57, 65; G3, 39; M2, 4, 6, 10, 15, 17, 19, 20, 23, 45, 50, 51; W3; PR147 150, 151, 154, 157; IC4, 15
 U. S. Geol. Survey: B256, 531D, 659; F102, 110, 123, 189; WS110
 U. S. Bur. Mines: R4757, 4763, 5314

JEFFERSON

- Pa. Geol. Survey (3rd): 8, 11
 Pa. Geol. Survey (4th): A54, 55, 65; G39; M2, 4, 6, 11, 15, 19, 20, 23, 31, 32, 39, 45, 50, 51; W3; PR148, 150, 151, 154, 157; IC4, 15
 U. S. Bur. Mines: R4840, 4941

JUNIATA

- Pa. Geol. Survey (3rd): 8, 11
 Pa. Geol. Survey (4th): A127; G19, 29; M15, 18, 20, 23, 39, 45, 50, 51; W5; PR144, 155; IC4

LACKAWANNA

- Pa. Geol. Survey (3rd): 8, 11
 Pa. Geol. Survey (4th): G7, 9, 39; M8, 15, 20, 23, 45; W4; PR130, 151; IC4, 15
 U. S. Geol. Survey: B1213; PP193D
 U. S. Bur. Mines: B494

LANCASTER

- Pa. Geol. Survey (3rd): 4, 8, 11
 Pa. Geol. Survey (4th): A168, 177C, 178; G3, 7, 33, 43; M5, 11, 15, 16, 20, 23, 27, 50, 51; W2, 23; PR153, 171; IC4, 14, 31, 32, 33, 34, 37, 41
 U. S. Geol. Survey: B799, 840, 891; GP217, 218, 219, 220, 233, 234, 239, 240, 241, 242, 243, 244, 245, 255, 256, 257, 258, 259, 269
 U. S. Bur. Mines: R4247, 4383

LAWRENCE

- Pa. Geol. Survey (3rd): 4, 8, 11
 Pa. Geol. Survey (4th): A5; G7, 32; M2, 4, 6, 15, 17, 20, 31, 32, 45, 51; W3, 15, 16; PR151; IC4, 15
 U. S. Geol. Survey: B873, 1143B

LEBANON

- Pa. Geol. Survey (3rd): 8, 11
 Pa. Geol. Survey (4th): A167CGD, 177C; G3, 19, 31, 33, 35, 37, 43; M11, 15, 16, 20, 23, 27, 50, 51; W2, 4, 18; PR130; IC4, 41
 U. S. Geol. Survey: B359; GP239, 254, 255, 256

LEHIGH

- Pa. Geol. Survey (3rd): 4, 5, 6, 8, 11
 Pa. Geol. Survey (4th): A206; C39; G7, 16, 31, 33, 37, 45; M5, 11, 16, 20, 23, 27, 50, 51; W2; IC4, 23, 24, 28, 42, 44
 U. S. Geol. Survey: B1082E; GP205, 206, 213, 266
 U. S. Bur. Mines: R4180

LUZERNE

- Pa. Geol. Survey (3rd): 4, 8, 11
 Pa. Geol. Survey (4th): G9, 19, 26, 39; M8, 15, 20, 23, 39, 45, 51; W4; PR130, 144, 155; IC4, 15
 U. S. Geol. Survey: B1213; PP193D, 473B

LYCOMING

- Pa. Geol. Survey (3rd): 4, 8, 11
 Pa. Geol. Survey (4th): G3, 7, 19, 39; M2, 11, 15, 20, 23, 27, 35, 39, 43, 45, 50, 51; W6; PR139, 143, 144, 147, 151, 152, 164, 167, 174; IC4, 15
 U. S. Geol. Survey: PP379

McKEAN

- Pa. Geol. Survey (3rd): 6, 11, 12
 Pa. Geol. Survey (4th): G19; M6, 11, 15, 18, 19, 20, 21, 23, 31, 32, 39, 40, 45; W6; PR125, 131, 143, 151, 155; IC4, 15; Map 5
 U. S. Bur. Mines: R4842, 6943

MERCER

Pa. Geol. Survey (3rd): 8, 11

Pa. Geol. Survey (4th): G32; M2, 4, 6, 11, 15, 20, 23, 31, 32, 39, 45; W3, 15, 16; PR143, 147, 148; WSR40

MIFFLIN

Pa. Geol. Survey (3rd): 8, 11

Pa. Geol. Survey (4th): G3 19, 29; M11, 18, 20, 23, 50; W5; IC4

MONROE

Pa. Geol. Survey (3rd): 4, 8, 11, 12

Pa. Geol. Survey (4th): G3, 4, 7, 11, 19, 23, 39; M15, 20, 23, 27, 50, 51; W4; IC4

MONTGOMERY

Pa. Geol. Survey (3rd): 8, 11

Pa. Geol. Survey (4th): G3, 43; M5, 13, 15, 20, 23, 27, 50, 51; W2, 14, 22; PR146; IC4, 18, 19, 23, 24, 25, 27, 40, 42

U. S. Geol. Survey: B828, 891

U. S. Bur. Mines: R4666

MONTOUR

Pa. Geol. Survey (3rd): 8, 11

Pa. Geol. Survey (4th): G3, 7, 19; M11, 15, 20, 23, 50; W4; IC4

NORTHAMPTON

Pa. Geol. Survey (3rd): 4, 5, 6, 8, 11

Pa. Geol. Survey (4th): A206; C48; G7, 10, 11, 16, 31, 33, 37, 45; M9, 15, 16, 20, 23, 27; W2; IC4, 28, 29

U. S. Geol. Survey: B920, 1194L; GP213, 235, 236, 549, 550, 551, 568, 570, 571

NORTHUMBERLAND

Pa. Geol. Survey (3rd): 8, 11

Pa. Geol. Survey (4th): G3, 4, 7, 13, 19, 39; M5, 8, 11, 15, 20, 23, 39, 43, 45, 50, 51; W4; PR130, 147, 150; IC4, 15

U. S. Geol. Survey: C13, 7, 10, 12, 46, 47, 48

PERRY

Pa. Geol. Survey (3rd): 4, 8, 11

Pa. Geol. Survey (4th): A127, 137A&B, 137C&D; G3, 4, 8, 19, 29, 30; M15, 20, 23, 51; W5; IC4

PHILADELPHIA

Pa. Geol. Survey (3rd): 6, 8, 11

Pa. Geol. Survey (4th): G41; M15, 20, 23, 27; W2, 13; IC4

U. S. Geol. Survey: F162; WS110, 1586-C

PIKE

Pa. Geol. Survey (3rd): 8, 11

Pa. Geol. Survey (4th): G4, 19, 39; M15, 20, 23, 45, 51; W4; PR155; IC4

POTTER

Pa. Geol. Survey (3rd): 8

Pa. Geol. Survey (4th): G4, 19; M6, 15, 18, 19, 20, 23, 30, 31, 39, 40, 45; W6; PR135, 139, 143, 144, 147, 148, 150, 151, 154, 155, 157, 167; IC4, 15

U. S. Geol. Survey: F92; PP288

SCHUYLKILL

Pa. Geol. Survey (3rd): 8, 11

Pa. Geol. Survey (4th): G7, 14, 19; M15, 20, 23, 50, 51; W4; PR130; IC4

U. S. Geol. Survey: B1112F; C113, 14, 19, 21, 43

SNYDER

Pa. Geol. Survey (3rd): 8, 11

Pa. Geol. Survey (4th): G3, 19; M15, 18, 20, 23, 50; W5; PR151, 154; IC4, 15; WSR41

SOMERSET

- Pa. Geol. Survey (3rd): 4, 8, 11
Pa. Geol. Survey (4th): C56a; G39; M4, 6, 15, 20, 23, 27, 31, 45, 50, 51; W5;
PR144, 149, 155, 157; IC4, 15
U. S. Geol. Survey: F160, 224
U. S. Bur. Mines: R4834, 4998, 5269

SULLIVAN

- Pa. Geol. Survey (3rd): 8, 11
Pa. Geol. Survey (4th): G7, 33, 39; M15, 20, 23, 27, 39, 43, 45; W6; PR130,
139, 150, 152; IC4, 15
U. S. Geol. Survey: PP379

SUSQUEHANNA

- Pa. Geol. Survey (3rd): 8, 11
Pa. Geol. Survey (4th): G19, 39; M15, 18, 20, 23, 27, 51; W4; PR130, 154,
157; IC4, 15

TIOGA

- Pa. Geol. Survey (3rd): 4, 8, 11
Pa. Geol. Survey (4th): G4, 19, 39; M2, 6, 15, 18, 20, 23, 27, 31, 32, 40, 45;
W6; PR135, 143, 148, 150, 151, 154, 155, 157, 164; IC4
U. S. Geol. Survey: F92, 93

UNION

- Pa. Geol. Survey (3rd): 4, 8, 11
Pa. Geol. Survey (4th): G3, 7; M15, 18, 20, 23, 39, 45, 50, 51; W5; PR147,
150; IC4, 15

VENANGO

- Pa. Geol. Survey (3rd): 4, 8, 11
Pa. Geol. Survey (4th): G7, 32; M4, 6, 11, 19, 20, 22, 23, 24, 25, 27, 31, 32;
W3; SB2, 3, 4, 9; PR122, 148; IC4, 15
U. S. Geol. Survey: B454
U. S. Bur. Mines: R6942

WARREN

- Pa. Geol. Survey (3rd): 8, 11, 12
Pa. Geol. Survey (4th): G7, 19, 32; M6, 15, 18, 19, 20, 22, 23, 31, 38, 45, 52,
53; W3; SB4; PR144, 148, 150, 154, 157, 162, 163; IC4, 15; Map 4, 6
U. S. Geol. Survey: F172
U. S. Bur. Mines: R6471

WASHINGTON

- Pa. Geol. Survey (3rd): 8, 11
Pa. Geol. Survey (4th): G39, 56; M2, 4, 6, 15, 17, 18, 19, 20, 28, 29, 31, 32,
50, 51, 54; W1; SB1; PR147, 148; IC4, 15
U. S. Geol. Survey: CQ283, 296, 333, 334; B300, 456; F94, 144, 177, 180
U. S. Bur. Mines: R5109, 5475

WAYNE

- Pa. Geol. Survey (3rd): 8, 11
Pa. Geol. Survey (4th): G19, 39; M15, 20, 23, 45, 51; W4; PR130, 151, 155,
157; IC4, 15

WESTMORELAND

- Pa. Geol. Survey (3rd): 8, 11, 12
Pa. Geol. Survey (4th): A36, 37, 48; G3, 39; M2, 4, 6, 10, 11, 15, 17, 19, 20,
31, 39, 45, 50, 51; PR135, 139, 144, 147, 150, 151, 154, 155, 157; IC4, 15
U. S. Geol. Survey: B659; F110, 224
U. S. Bur. Mines: R4803, 4823, 5374

WYOMING

- Pa. Geol. Survey (3rd): 4, 8, 11
Pa. Geol. Survey (4th): G7, 39; M15, 20, 23, 27, 43; W4; PR144, 152; IC4, 15
U. S. Geol. Survey: B1213; PP210B, 379

YORK

Pa. Geol. Survey (3rd): 4, 8, 11

Pa. Geol. Survey (4th): C67; G3, 7, 33, 43; M5, 11, 15, 18, 20, 23, 27, 50, 51; IC4, 31, 45, 46

U. S. Geol. Survey: B799, 840, 969A; GQ28; PP204; GP217, 270, 271, 272, 274, 275, 277, 281, 282, 286, 287

U. S. Bur. Mines: R4145

COMMODITIES INDEX**ABRASIVES (Corundum, Garnet)**

Pa. Geol. Survey (3rd): 8, 9, 11

Pa. Geol. Survey (4th): C1; M18; IC13

U. S. Geol. Survey: B624, 828, 891; F162, 167, 225

ALUMINUM

Pa. Geol. Survey (4th): G1

U. S. Geol. Survey: B465

ANTHRACITE, see Coal**ASBESTOS**

Pa. Geol. Survey (3rd): 9

Pa. Geol. Survey (4th): C1; G1; M18

U. S. Geol. Survey: B624, 920, 1182K; F225

BARITE

Pa. Geol. Survey (3rd): 9

Pa. Geol. Survey (4th): A96; C9; G1; M18; IC17

U. S. Geol. Survey: B624, 855; F170

BERYL

Pa. Geol. Survey (3rd): 9

U. S. Geol. Survey: B626

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Pa. Geol. Survey (3rd): 5, 8, 9, 11

Pa. Geol. Survey (4th): A206; C48; G1; IC2

U. S. Geol. Survey: B447, 624, 855; F82, 170, 174

CHROMIUM

Pa. Geol. Survey (3rd): 9

Pa. Geol. Survey (4th): G1; PR153; IC14

U. S. Geol. Survey: B624, 725, 799, 1082K; F211

U. S. Bur. Mines: R4383

CLAY (Shale, Fire Clay, Brick Clay)

Pa. Geol. Survey (3rd): 8, 9, 11

Pa. Geol. Survey (4th): A5, 27, 36, 37, 54, 55, 57, 65, 75, 96, 109A, 119C&D, 127, 137A&B, 137C&D, 168, 177C, 206; C1, 9, 26, 30, 39, 56a, 67; G1, 43, 54; M10, 17, 23, 51; PR169; IC2; Map 12

U. S. Geol. Survey: B256, 279, 286, 300, 447, 624, 840, 855, 873, 891, 930; F82, 92, 93, 94, 102, 110, 115, 121, 123, 125, 133, 134, 144, 163, 167, 170, 172, 174, 177, 178, 179, 180, 189, 223, 224, 225, 227; GQ28, PP204

COAL (Bituminous Coal, Anthracite)

Pa. Geol. Survey (3rd): 8, 9, 10, 11

Pa. Geol. Survey (4th): A5, 27, 36, 37, 48, 54, 55, 57, 65, 178; C26, 30, 56a; ES7; G1; M2, 4, 6, 8, 12, 42, 48, 55; PR130, 159; Map 2

U. S. Geol. Survey: B256, 279, 285, 286, 300, 318, 447, 454, 624, 659, 840, 873, 995A, 1112F, 1117C, 1143A, 1143B; F82, 92, 94, 102, 110, 115, 121, 123, 125, 126, 133, 134, 144, 172, 174, 177, 179, 224, 227, 256; PP193D; CI3, 7, 10, 12, 13, 14, 19, 21, 25, 43, 46, 47, 48

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COBALT

Pa. Geol. Survey (3rd): 9
Pa. Geol. Survey (4th): G1, 35

COPPER

Pa. Geol. Survey (3rd): 8, 9, 11
Pa. Geol. Survey (4th): C1, 9, 48; G1, 35
U. S. Geol. Survey: B624, 828, 891; F162, 167, 225

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Pa. Geol. Survey (3rd): 8, 9, 11
Pa. Geol. Survey (4th): G1; M13, 18
U. S. Geol. Survey: B624, 1182K; F225

FLUORITE

Pa. Geol. Survey (3rd): 9
U. S. Geol. Survey: B624, 855

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Pa. Geol. Survey (3rd): 9
Pa. Geol. Survey (4th): G1, 35
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Pa. Geol. Survey (3rd): 6, 8, 9, 11
Pa. Geol. Survey (4th): A206; C9, 39; G1
U. S. Geol. Survey: B624, 891, 1082K; F167
U. S. Bur. Mines: R4530

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Pa. Geol. Survey (3rd): 8, 9, 11
Pa. Geol. Survey (4th): A5, 27, 36, 37, 54, 55, 57, 75, 96, 109A, 119C&D, 177C, 178, 206; C1, 26, 30, 39, 48, 56a, 67; G32; W1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25; PR146, 171; ES3
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Pa. Geol. Survey (3rd): 8, 9, 11
Pa. Geol. Survey (4th): A36, 54, 55, 57, 65, 96, 109A, 127, 167C, 168; C1, 9, 26, 39, 48, 67; G1, 35; M14, 18, 26, 49, 56
U. S. Geol. Survey: B279, 359, 447, 624, 799, 828, 840, 855, 873, 891, 920, 969A, 995D, 1182K; F82, 93, 115, 121, 125, 162, 170, 223, 224, 225, 227, 279; GQ28; PP204
U. S. Bur. Mines: R4145, 5165

LEAD (Zinc)

Pa. Geol. Survey (3rd): 9
Pa. Geol. Survey (4th): A96, 168; C9, 26, 39; G1; M5
U. S. Geol. Survey: B855, 891, 920; F162
U. S. Bur. Mines: R4180, 4247, 4422, 4451, 4703, 4743

LIMESTONE (Dolomite, Marble)

Pa. Geol. Survey (3rd): 8, 9, 11

Pa. Geol. Survey (4th): A5, 27, 36, 37, 48, 54, 55, 57, 65, 75, 96, 109A, 119C&D, 127, 137A&B, 137C&D, 167C&D, 168, 178, 206; C1, 9, 26, 30, 39, 48, 56a, 67; G1, 26, 31, 35, 37, 38, 44, 45, 47, 52, 53; M15, 20, 50; PR136, 140; IC2

U. S. Geol. Survey: B256, 279, 286, 300, 447, 624, 799, 828, 840, 855, 873, 920, 1194L; F82, 92, 93, 94, 102, 111, 115, 125, 133, 134, 144, 146, 170, 174, 177, 178, 180, 189, 224, 225, 227; PP204

MAGNESITE

U. S. Geol. Survey: B1182K

MANGANESE

Pa. Geol. Survey (3rd): 9

Pa. Geol. Survey (4th): C1, 39, 48; G1; M26, 27; PR128

U. S. Geol. Survey: B624; F170, 225; GQ28

U. S. Bur. Mines: R4312, 4326, 4436

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Pa. Geol. Survey (3rd): 9, 11

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Pa. Geol. Survey (3rd): 4, 8, 9, 11

U. S. Geol. Survey: B624

MOLYBDENITE

Pa. Geol. Survey (3rd): 9

U. S. Geol. Survey: B624

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Pa. Geol. Survey (3rd): 8, 9

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U. S. Geol. Survey: B624, 799

OIL AND GAS (Natural Gas, Petroleum)

Pa. Geol. Survey (3rd): 1, 3, 8, 9, 11

Pa. Geol. Survey (4th): A27, 48, 65, 75; C26, 56a; ES8; G49; M1, 21, 22, 24, 25, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 45, 46, 52, 53, 54, 57; SB1, 2, 3, 4, 5, 6, 7, 9; PR122, 123, 124, 125, 127, 129, 138, 139, 142, 143, 144, 147, 148, 150, 151, 154, 155, 157, 160, 163, 165, 166, 168, 172, 173; WSR38, 40, 41, 56; Maps 3, 4, 5, 6, 10

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U. S. Bur. Mines: R4842, 5438, 6471, 6917, 6942, 6943; I8330

PEAT

Pa. Geol. Survey (4th): A206; G32

U. S. Geol. Survey: B624

PHOSPHATE

Pa. Geol. Survey (3rd): 9

Pa. Geol. Survey (4th): M18

PYRITE

Pa. Geol. Survey (3rd): 9, 11

Pa. Geol. Survey (4th): A206; C39; G1, 35

PYROPHYLLITE

Pa. Geol. Survey (4th): IC2

QUARTZ (Sand and vein), see **Sand**

ROOFING GRANULES

Pa. Geol. Survey: C1, 67; IC2

RUTILE

U. S. Geol. Survey: B624, 1182K

SALT (Brine)

Pa. Geol. Survey (3rd): 8, 11

Pa. Geol. Survey (4th): G1; M18, 47, 58; PR145

U. S. Geol. Survey: B624; F110

SAND (Sand and Gravel, Moulding Sand, Glass Sand, Quartz)

Pa. Geol. Survey (3rd): 8, 11, 12

Pa. Geol. Survey (4th): A27, 36, 54, 55, 109A, 119C&D, 168, 177C, 178, 206; C9, 26, 30, 39; G1, 10, 32; M3, 11; IC2

U. S. Geol. Survey: B279, 286, 447, 624, 799, 840, 855, 828, 891, 1121B; F82, 94, 115, 162, 167, 172, 177; PP204, 288, 379

SANDSTONE

Pa. Geol. Survey (3rd): 8

Pa. Geol. Survey (4th): A5, 27, 36, 37, 48, 55, 57, 75, 109A, 119C&D, 127, 137A&B, 137C&D, 177C; C26, 30; G1, 54; M15

U. S. Geol. Survey: B256, 286, 300, 624, 873; F82, 102, 125, 134, 144, 146, 177, 178, 180

SCHEELITE (Tungsten)

Pa. Geol. Survey (3rd): 9

SERPENTINE

Pa. Geol. Survey (3rd): 9

Pa. Geol. Survey (4th): M15

U. S. Geol. Survey: B624, 920, 1082K

SHALE, see **Clay**

SILVER

Pa. Geol. Survey (3rd): 9

Pa. Geol. Survey (4th): G1, 35

U. S. Geol. Survey: B799, 855

SLATE

Pa. Geol. Survey (3rd): 8, 9, 11

Pa. Geol. Survey (4th): A206; C1, 39, 48; G1; M9, 16; IC2

U. S. Geol. Survey: B624, 920, 1182K

STONE (Building Stone, Crushed Stone, Ganister, Granite), see also specific type of stone

Pa. Geol. Survey (4th): A48, 96, 109A, 119C&D, 168, 177C, 206; C1, 9, 39, 48, 67; G44, 54; M15

U. S. Geol. Survey: B279, 447, 828, 840, 855, 891; F82, 92, 94, 110, 115, 121, 133, 162, 167, 170, 172, 174, 211, 223, 227, 279; PP204

TALC

Pa. Geol. Survey (3rd): 5, 8, 9, 11

U. S. Geol. Survey: B624, 920, 1182K

URANIUM

Pa. Geol. Survey (3rd): 9

Pa. Geol. Survey (4th): M43; PR152; IC5

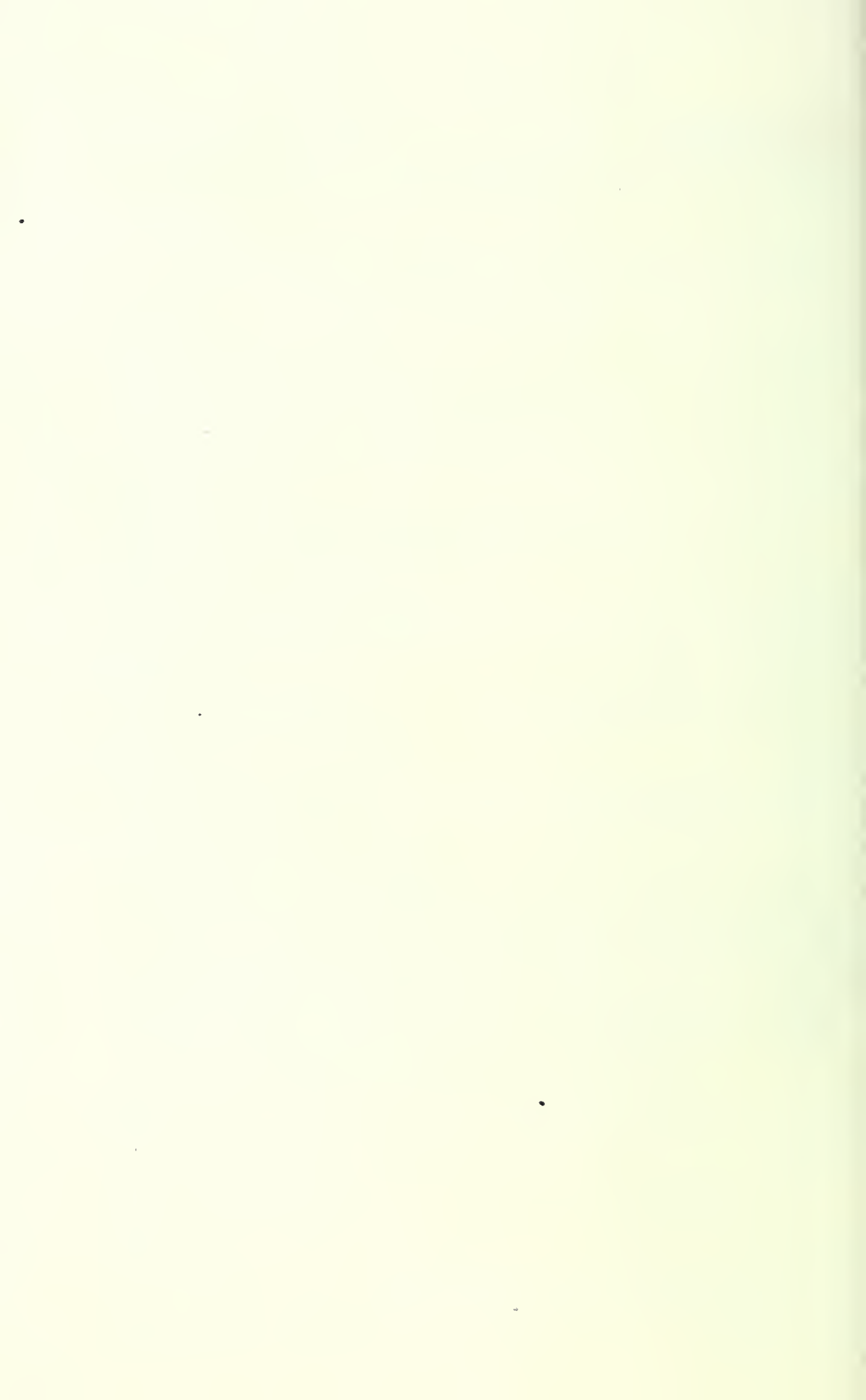
U. S. Geol. Survey: Cir 350

VERMICULITE

Pa. Geol. Survey (4th): M18

WATER RESOURCES, see **Ground Water**

ZINC, see **Lead**





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Topographic maps of Pennsylvania are prepared by the United States Geological Survey in cooperation with the Bureau of Topographic and Geologic Survey. Persons wishing to know the names and scales of topographic maps which are available for Pennsylvania may obtain an **Index to Topographic Mapping in Pennsylvania** free on request from either:

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Harrisburg, Pa. 17120

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U. S. Geological Survey
Washington, D. C. 20242

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1200 S. Eads Street
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On such orders, customers should state the name of the map as well as the type of map desired and are urged to use order blanks supplied with the Index to Topographic Mapping in Pennsylvania mentioned above. Orders must be accompanied by cash, check, or money order in the exact amount. Stamps will not be accepted as payment.

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There have been four geological surveys of Pennsylvania and four resulting series of publications:

First Survey, 1836-1854; Publications—6 annual reports, 2 quarto-volumes, and a state geologic map.

Second Survey, 1874-1887; Publications—81 volumes, 35 atlases, and a grand atlas.

Third (Commission) Survey, 1899-1919; Publications—6 biennial reports and 12 economic reports listed in this pamphlet.

Fourth Survey, 1919——: Publications listed in this pamphlet (fourth series).

All reports of the first three geological surveys and some of the reports of the present (fourth) survey are out-of-print. These reports are available for consultation in many libraries.

SOURCES OF OUT-OF-PRINT REPORTS

The library of the Pennsylvania Geological Survey in Harrisburg is open for public use and contains all previous Pennsylvania Survey reports, as well as most of the U. S. Geological Survey, U. S. Bureau of Mines, and other governmental and institutional reports.

Many reports appearing in this list of publications are marked with an asterisk (*) indicating that they are out-of-print and no longer available for distribution.

Out-of-print reports are available for study in many libraries throughout the state, particularly those in larger cities and at colleges.

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*G 19	The Devonian of Pennsylvania , by Bradford Willard, F. M. Swartz, and A. B. Cleaves. 1939. 450 p., 95 figs., 32 pls.	*
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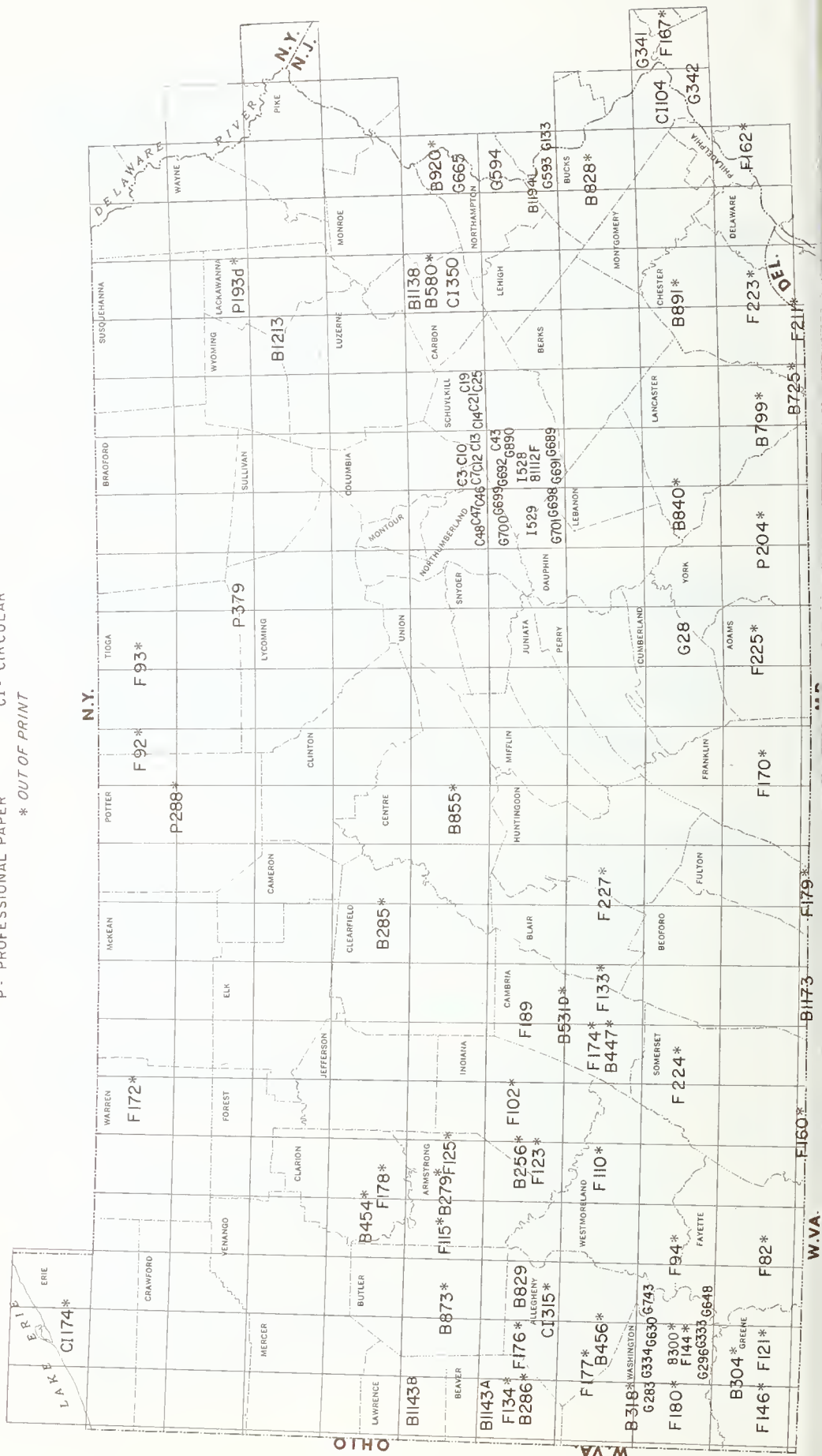
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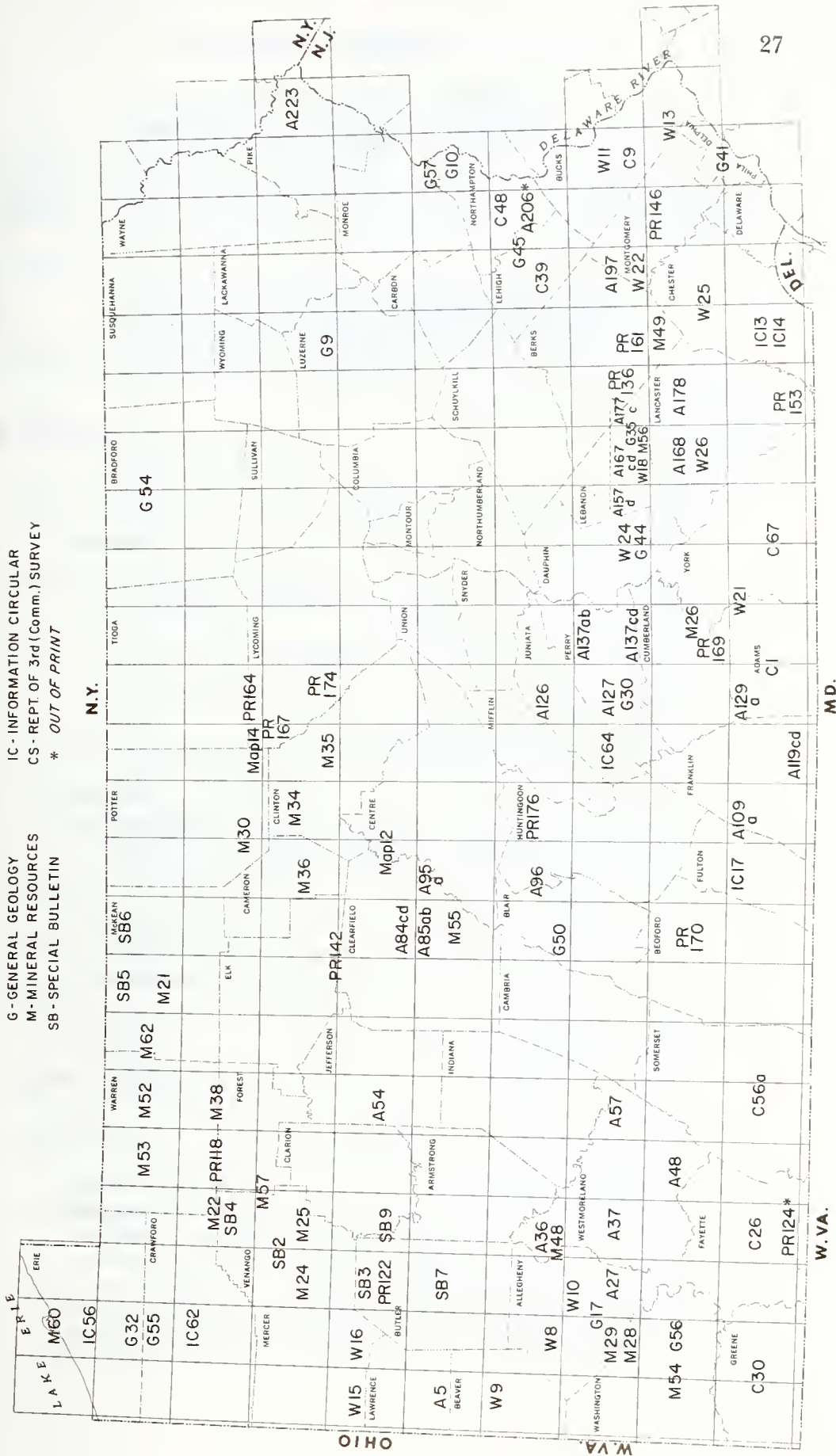
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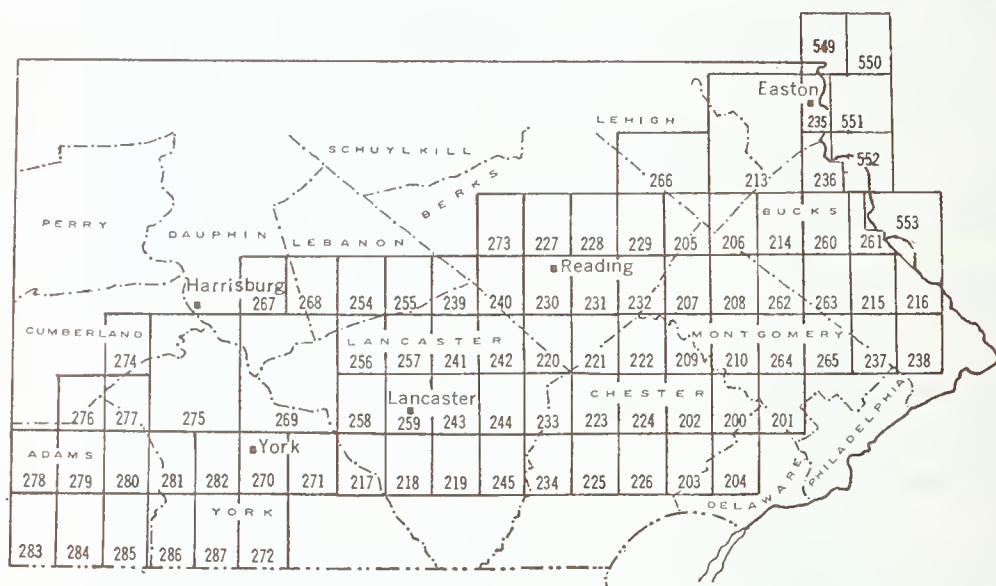
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Much additional information on Pennsylvania Geology is available in publications not covered by this list. The reader is referred to Pa. Geological Survey Bulletins G-34 and G-42 for a complete list of all articles on Pennsylvania Geology written before 1959.

Abbreviations used in this Key are as follows:

Pennsylvania 3rd (Commission) Survey—Pa. Geol. Survey (3rd)
 Pennsylvania Geological Survey, 4th series—Pa. Geol. Survey (4th)

A ——— Atlas Series
 C ——— County Reports
 IC ——— Information Circulars
 ES ——— Educational Series
 G ——— General Geology Reports
 M ——— Mineral Resource Reports
 PR ——— Progress Reports
 SB ——— Special Bulletins
 W ——— Water Resource Reports
 WSR ——— Well-Sample Records
 Map ——— Map Series

United States Geological Survey—U. S. Geol. Survey

B ——— Bulletins
 Cir ——— Circulars
 CI ——— Coal Investigations
 F ——— Folios
 GP ——— Geophysical Investigations
 GQ ——— Geologic Quadrangle Maps
 HA ——— Hydrologic Investigations Atlas
 I ——— Miscellaneous Geologic Investigations
 PP ——— Professional Paper
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- U. S. Geol. Survey: B855, 891, 920; F162
- U. S. Bur. Mines: R4180, 4247, 4422, 4451, 4703, 4743

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Most maps published by the Pennsylvania and U. S. Geological Surveys are published at one of two scales—1:62,500 or 1:24,000. These scales are interpreted as follows: on a 1:62,500 map 1 inch on the map equals approximately 1 mile; on a 1:24,000 map 1 inch equals 2,000 feet. Other map scales cited in the List are followed by their equivalent distances.

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Many reports appearing in this list of publications are marked with an asterisk (*) indicating that they are out-of-print and no longer available for distribution.

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IC 59	The mineral industry of Pennsylvania in 1966 , by C. C. Yeloushan. 1968. 26 p., 1 fig., 9 tables	free
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IC 61	Stratigraphy of Pennsylvanian Rocks in Clearfield County , by W. E. Edmunds. 1969. 36 p., 14 figs.	0.50
IC 62	The Precambrian in the subsurface of northwestern Pennsylvania and adjoining areas , by T. E. Saylor. 1968. 25 p., 6 figs., 2 pls.	0.45
IC 63	The mineral industry of Pennsylvania in 1967 , by C. C. Yeloushan. 1968. 37 p., 1 fig.	free
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IC 66	Geology of flagstones in the Endless Mountains region, northern Pennsylvania , by J. D. Glaeser. 1969. 14 p., 8 figs.	0.25
IC 67	Analysis of shales and clays of Greene County, Pennsylvania , by J. B. Roen and J. W. Hosterman. 1969. 29 p., 2 figs., 1 pl.	0.35
IC 68	Chemical Analyses of three Triassic(?) diabase dikes in Pennsylvania , by D. M. Lapham and T. E. Saylor	(in press)
IC 69	The mineral industry of Pennsylvania in 1968 , by C. C. Yeloushan. 1970. 22 p., 2 figs.	free
IC 70	Summary of isotopic age determinations in Pennsylvania , by D. M. Lapham and S. I. Root	(in preparation)
IC 71	The mineral industry of Pennsylvania in 1969 , by C. G. Leaf (in press)	

MAPS

# 1	Geologic map of Pennsylvania . 1960. Scale 1:250,000 (1" = 4 miles). Supersedes Geologic Map of Pennsylvania. 1932	3.75
# 2	Coal fields of Pennsylvania . 1929. Scale 1:380,160 (1" = 6 miles)	0.50
# 3	Oil and gas fields of Pennsylvania , by W. S. Lytle and V. Fairall. 1964. Scale 1:316,800 (1" = 5 miles) on reverse side Principal crude oil and product pipelines of Pennsylvania and Principal natural gas pipelines of Pennsylvania, by W. S. Lytle and L. A. Heeren. 1964. Scale 1:633,600 (1" = 10 miles). (Replaces 1953 edition	

	by W. S. Lytle and L. A. Heeren which replaced the 1932 edition originally published as Pl. 1 of M 19)	1.70
*# 4	Undrilled areas of Sheffield quadrangle , by L. S. Matteson. 1946. Scale 1:62,500 (1" = approx. 1 mile)	*
*# 5	Undrilled areas of Kinzua and northern Kane quadrangles , by C. F. Fettke. 1946. Issued in two sheets, N. Kinzua; S. Kinzua and Kane. Scale 1:62,500 (1" = approx. 1 mile)	*
*# 6	Farm line map of Warren quadrangles, showing undrilled areas , by S. H. Cathcart and W. H. Seifert. 1947. Scale 1:31,680 (1" = ½ mile)	*
# 7	9" x 12" Geologic map of Pennsylvania (Color). 1962	free
*# 8	Topographic map of Bucks County . 1959. Scale 1:62,500 (1" = approx. 1 mile)	*
# 9	Subsurface structure of the plateau region of north-central and western Pennsylvania on top of the Oriskany Formation , by A. S. Cate. 1962. 1 large map. Scale 1:250,000 (1" = approx. 4 miles)65
#10	9" x 12" Oil and gas fields map of Pennsylvania (Color)	free
#11	9" x 12" Coal fields of Pennsylvania map (Color)	free
#12	Map of the Mercer clay and adjacent units in Clearfield, Centre, and Clinton Counties, Pennsylvania . 1964. Scale 1:85,040 (1" = 1.5 miles)	1.55
#13	8½" x 11" Physiographic provinces map of Pennsylvania (Color)	free
#14	Surface structure map of parts of Lycoming, Clinton, Tioga, and Potter Counties, Pennsylvania , by G. W. Colton. 1967. Scale 1:48,000 (1" = 4000')	1.00
#15	Limestone and dolomite distribution in Pennsylvania (Color) 12" by 22"	free
#16	Oil and gas well base map of Corry, Tidioute, Titusville and Youngsville quadrangles (ozalid print, revised every six months). Scale 1:62,500	0.50
#17	Oil and gas well base map of Kane, Kinzua, Sheffield and Warren quadrangles (ozalid print, revised every six months). Scale 1:62,500	0.50
#18	Oil and gas well base map of Clarion, Foxburg, Oil City and Tionesta quadrangles (ozalid print, revised every six months). Scale 1:62,500	0.50
#19	Oil and gas well base map of Brookville, Dubois, Hallton and Marienville quadrangles (ozalid print, revised every six months). Scale 1:62,500	0.50
#20	9" x 12" Availability of water in Pennsylvania (Color)	free
#21	Oil and gas well base map of Zelienople, Butler, Sewickley and New Kensington quadrangles (ozalid print, revised every six months). Scale 1:62,500	0.50
#22	Oil and gas well map of Kittanning, Rural Valley, Freeport and Elders Ridge quadrangles (ozalid print, revised every six months). Scale 1:62,500	0.50
#23	Oil and gas well base map of the Smicksburg, Punxsatawney, Indiana and Barnesboro quadrangles (ozalid print, revised every six months) Scale 1:62,500	0.50
	Base map of Pennsylvania , prepared from U. S. Army Map Service United States Series of Topographic maps. 1960. Scale 1:250,000 (1" = 4 miles). Culture and drainage only	8.75

MINERAL RESOURCE REPORTS

*M 1	Oil and gas fields of Pennsylvania , Vol. 1, Introduction , by G. H. Ashley and J. F. Robinson. 1922. 79 p., 9 figs., 4 pls.	*
*M 2	Oil resources in coals and carbonaceous shales of Pennsylvania , by C. R. Fettke. 1923. 119 p., 16 figs., 6 pls.	*
*M 3	Silica refractories of Pennsylvania , by E. E. Moore and T. G. Taylor. 1924. 100 p., 10 figs., 16 pls.	*
*M 4	Bituminous coal losses and mining methods in Pennsylvania , by J. D. Sisler. 1924. 216 p., 29 figs., 1 pl.	*
*M 5	Lead and Zinc ores of Pennsylvania , by B. L. Miller. 1924. 91 p., 7 figs., 5 pls.	*
M 6	Bituminous coal fields of Pennsylvania.	
	Part I . General information on coal , by G. H. Ashley. 1928. 241 p., 32 figs., 17 pls.	0.50
	Part II . Detailed description of coal fields , by J. D. Sisler. 1926; 3rd printing, 1961. 511 p., 152 figs., 14 pls.	2.25
	Part III. Bituminous coal resources , by J. F. Reese and J. D. Sisler. 1928. 153 p., 4 pls.	0.25
	Part IV. Analyses of bituminous coal , by U. S. Bureau of Mines. 1925. 2nd Edition 1928. 268 p., 1 pl.	0.50
*M 7	Limestones of Pennsylvania , by B. L. Miller. 1925. 368 p., 7 figs., 15 pls. (replaced by M 20)	*
*M 8	Anthracite losses and reserves in Pennsylvania , by D. G. Ashmead. 1926. 71 p., 13 figs., 1 pl.	*
*M 9	Slate in Northampton County , by C. H. Behre, Jr. 1927. 312 p., 49 figs., 36 pls. (replaced by M 16)	*
*M 10	Fire clays of Pennsylvania , by J. B. Shaw. 1928. 69 p., 6 figs. . .	*
*M 11	Molding sands of Pennsylvania , by R. W. Stone and American Foundrymen's Association. 1928. 94 p., 10 figs., 21 pls.	*
M 12	Anthracite culm and silt , by J. D. Sisler and others. 1928. 259 p., 21 figs., 34 pls.	0.50
*M 13	Feldspar in Pennsylvania , by R. W. Stone and H. H. Hughes. 1931. 60 p., 6 figs., 20 pls.	*
*M 14	Magnetite deposits of French Creek, Pennsylvania , by L. L. Smith. 1931. 52 p., 5 figs., 5 pls.	*
M 15	Building stones of Pennsylvania , by R. W. Stone. 1932. 316 p., 164 figs., 4 pls.	1.25
M 16	Slate in Pennsylvania , by C. H. Behre, Jr. 1933. 400 p., 89 figs., 70 pls., including 5 colored maps	2.75
M 17	Clay and shale resources of southwestern Pennsylvania , by Henry Leighton. 1933. 190 p., 16 figs., 1 colored map	0.75
*M 18	The minerals of Pennsylvania.	
	*A. Introduction , by G. H. Ashley. 1933. 15 p.	*
	*B. Iron ores of Pennsylvania , by W. O. Hickok. 1939; revised reprinting, 1940. 21 p.	*
	*C. Nonmetallic minerals , by R. W. Stone. 1939; reprinted, 1940. 50 p., 1 fig.	*

*M 19	Contributions to oil and gas geology of western Pennsylvania , by J. D. Sisler and others. 1933. 94 p., 1 fig., 22 pls.	*
M 20	Limestones of Pennsylvania , by B. L. Miller. 1934. 729 p., 34 figs., 41 pls.	2.00
M 21	Bradford oil field, Pennsylvania and New York , by C. R. Fettke. 1938. 454 p., 113 figs., 21 pls.	3.00
M 22	Oil geology of the Titusville quadrangle, Pennsylvania , by P. A. Dickey. 1941; 3rd printing, 1967. 87 p., 13 figs., 6 pls.	1.00
M 23	Clay and shale resources in Pennsylvania , by Henry Leighton. 1941; 2nd printing, 1959. 245 p., 4 figs., 1 colored map	1.25
M 24	Oil and gas geology of the Franklin quadrangle , by R. E. Sherrill and L. S. Matteson. 1941; 2nd printing, 1963. 71 p., 5 figs., 6 pls. ..	0.80
M 25	Oil and gas geology of the Oil City quadrangle , by P. A. Dickey and others. 1943; 2nd printing, 1963. 201 p., 17 figs., 8 pls.	1.70
M 26	Iron-Manganese ore deposits at White Rocks, Cumberland County, Pennsylvania , by R. M. Foose. 1946. 35 p., 3 figs., 14 pls.	0.75
M 27	Manganese minerals of Pennsylvania , by R. M. Foose. 1946. 2nd printing, 1967. 126 p., 25 figs., 27 pls.	2.25
M 28	Oil and gas developments in the North Strabane area, Washington County, Pennsylvania , by C. R. Fettke and others. 1946. 62 p., 10 figs., 2 pls.	1.00
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M 30	East Fork-Warton gas field, Potter County, Pennsylvania , by J. R. Ebright and others. 1949. 44 p., 2 figs., 1 pl.	0.70
M 31	Summarized records of deep wells in Pennsylvania , by Chas. R. Fettke. 1950. 148 p., 2 figs., 2 pls.	1.00
	Extra maps, M31, pl. 1, 4 sheets, per set	0.25
M 32	Crude oil reserves of Pennsylvania , by W. S. Lytle, 1950. 256 p., 1 fig., 1 pl.	1.25
	Extra map of oil fields, M32, pl. 1	0.10
M 33	Waterflooding in Pennsylvania , by C. R. Fettke. 1950. 30 p., 16 figs.	0.25
M 34	Geology of the Leidy gas field and adjacent areas, Clinton County, Pennsylvania , by J. R. Ebright and A. I. Ingham. 1950. 35 p., 2 figs., 3 pls.	0.75
M 35	The Hyner and Ferney anticlines and adjacent areas, Centre, Clinton, and Lycoming Counties, Pennsylvania , by J. R. Ebright. 1952. 32 p., 2 figs., 2 pls.	0.75
M 36	Surface and subsurface structure of the Driftwood quadrangle , by R. C. Bolger and H. V. Couse. 1953. 31 p., 1 fig., 3 pls.	0.55
M 37	Oil and gas developments in the Appalachian Basin, past and present , by C. R. Fettke. 1953. 3rd printing 1964. 15 p., 1 fig., 1 pl.	free
M 38	Oil and gas geology of the Sheffield quadrangle , by A. I. Ingham and others. 1956. 72 p., 4 figs., 9 pls.	1.00
M 39	Summarized records of deep wells in Pennsylvania, 1950 to 1954 , by C. R. Fettke. 1956. 114 p., 1 fig., 5 pls.	1.00
M 40	Well-sample descriptions in northwestern Pennsylvania and adjacent states , by C. R. Fettke. 1961. 691 p., 4 pls.	2.25

M 41	History, present status, and future possibilities of secondary recovery operations in Pa. , by W. S. Lytle. 1960. (Reprinted from Interstate Oil Compact Commission Bull., Vol. 1, No. 2, Dec. 1959) p. 28-42, 7 figs.	free
M 42	Coal, a petrographic approach , by E. F. Koppe. 1960. 25 p., 7 figs., 5 pls.	0.60
M 43	Uranium in Pennsylvania , by J. F. McCauley. 1961. 75 p., 11 figs., 9 pls.	1.30
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M 45	A summary of oil and gas developments in Pennsylvania—1955 to 1959 , by W. S. Lytle and others. 1961. 133 p., 5 figs., 10 pls.	1.45
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M 47	The occurrence of brines in western Pennsylvania , by C. W. Poth. 1962. 53 p., 11 figs.	0.90
M 48	Petrography of the Upper Freeport coal—Harmar and Springdale mines, Allegheny and Westmoreland Counties, Pennsylvania , by E. F. Koppe. 1963. 43 p., 11 figs., 8 tables	0.50
M 49	Mineral aspects of the Grace Mine magnetite deposit , by Akio Tsusue. 1964. 10 p., 4 figs.	0.15
M 50	Atlas of Pennsylvania's mineral resources, a 13½" x 18" loose leaf folio with hard cover.	
	Part 1. Limestones and dolomites of Pennsylvania , by B. J. O'Neill, Jr. 1964. Six fold-out full-color maps plus text and tables. Scale: 1:250,000 (1" = approx. 4 miles)	2.75
	Part 1. Supplement, Limestones and dolomites of Pennsylvania , by G. Deasy and others. 1967. 83 p., 109 figs.	1.00
	Part 2B. Economics of Pennsylvania's clay and shale production , by G. Deasy and P. Greiss. 1969. 25 p., 75 figs.	1.00
	Part 3. Metal mines and occurrences in Pennsylvania , by A. W. Rose. 1970. 14 p., 1 pl.	1.60
M 51	Properties and uses of Pennsylvania shales and clays , by B. J. O'Neill, Jr. and others. 1965. 448 p., 20 figs., 13 tables	4.15
M 52	Oil and gas geology of the Warren quadrangle, Pennsylvania , by W. S. Lytle. 1966. 94 p., 6 figs., 8 pls.	3.55
M 53	Oil and gas geology of the Youngsville quadrangle, Pennsylvania , by W. G. McGlade. 1964. 56 p., 2 figs., 7 pls.	2.70
M 54	Oil and gas geology of the Amity and Claysville quadrangles , by W. G. McGlade. 1967. 131 p., 3 figs., 9 pls.	5.00
M 55	Petrography of coal in the Houtzdale quadrangle , by E. F. Koppe. 1967. 73 p., 16 figs.	1.05
M 56	Geology and origin of the Triassic magnetite deposits and diabase at Cornwall , by D. M. Lapham and Carlyle Gray. (in preparation)	
M 57	Geology of the Red Valley sandstone in Forest and Venango counties , by D. R. Kelley. 1967. 49 p., 11 figs., 5 pls.	1.25
M 58	Salt deposits of the Salina Group in Pennsylvania , by W. B. Fergusson and B. A. Prather. 1968. 41 p., 29 figs., 1 pl.	0.55
M 59	Geology of the Elk Run gas pool, Jefferson County , by Louis Heyman. 1969. 18 p., 4 figs., 2 pls.	0.50
M 60	Medina and Oriskany production along the shore of Lake Erie, Pierce Field, Erie County , by D. R. Kelley and W. G. McGlade. 1969. 38 p., 6 figs., 4 pls.	2.40

M 61	A resumé of some major geophysical logging methods for Pennsylvania operators , by D. R. Kelley. 1969. 81 p., 41 figs.	1.30
M 62	Oil and gas geology of the Kinzua quadrangle , by W. S. Lytle and J. Coth. 1970. 99 p., 11 figs., 9 pls.	5.00
M 63	Properties and uses of clays and shales in southeastern Pennsylvania , by K. B. Hoover and others (in press)	
M 64	Proceedings: Fifth Forum on geology of industrial minerals , K. B. Hoover, editor. 1969. 278 p.	2:35
M 65	The petroleum industry and the future petroleum province in Pennsylvania , by D. R. Kelley and others. 1970 (in press)	

MISCELLANEOUS PAPERS

*1	The Story of the Survey , by G. H. Ashley. 1920. 20 p.	*
*2	The Work of the Survey, 1919-1922 , by G. H. Ashley. 1923. 18 p.	*
*3	The Pennsylvania Geological Survey, Administrative Report , by G. H. Ashley. 1931. 38 p.	*
*4	The resources of Pennsylvania in a nutshell , by G. H. Ashley. 1931. 15 p.	*
*5	Fifteen years, Sept. 1, 1919, to Sept. 1, 1934 , by G. H. Ashley. 1934. 8 p.	*
*6	A quarter century of progress , by G. H. Ashley. 1944. 10 p. ..	*

PARK GUIDES

PG 1	Ice mine and balanced rock; Trough Creek State Park , by J. P. Wilshusen. 1969	free
PG 2	Hickory Run boulder field; Hickory Run State Park , by A. R. Geyer. 1969	free
PG 3	Archbald pothole; Archbald Pothole State Park , by W. G. McGlade. 1969	free
PG 4	Moraine State Park , by W. S. Lytle. 1970.	free
PG 5	Grand Canyon; Leonard Harrison State Park , by W. G. McGlade. 1970. (in press)	
PG 6	French Creek State Park , by W. B. Fergusson. 1970. (in press)	
PG 7	Ohiopyle State Park , by K. Bushnell. 1970. (in press)	

PROGRESS REPORTS

*PR 1-105	Mimeographed series of reports, all out of print, many superseded. See G I for partial list	*
*PR 106	Gas and oil in Potter County, Pa. , by S. H. Cathcart. 1934. 31 p., 3 figs.	*
*PR 107	Gas in Tioga County, Pennsylvania , by S. H. Cathcart and T. H. Myers. 1934. 42 p., 5 figs.	*
*PR 108	Geologic structure in the plateaus region of northern Pennsylvania and its relation to the occurrence of gas in the Oriskany sand , by S. H. Cathcart. 1934. 24 p., 2 figs. (replaced by PR 138)	*
*PR 109	Possibility of finding gas in Cameron County, Pennsylvania , by S. H. Cathcart. 1934. 16 p., 3 figs.	*
*PR 110	Possible occurrence of gas in the Oriskany sand of Elk County, Pennsylvania , by S. H. Cathcart. 1934. 21 p., 3 figs.	*
*PR 111	Possibility of finding gas in the Oriskany sand of McKean County, Pennsylvania , by S. H. Cathcart. 1934. 13 p., 3 figs.	*

* Out-of-print.

- *PR 112 **White clays of Pennsylvania**, by Henry Leighton. 1934. 19 p., 12 figs. (See M 17 and M 23) *
- *PR 113 **Pennsylvania geology summarized**, by Bradford Willard. 1935. 4th Edition (reprinted as ES 4) *
- *PR 114 **Subsurface stratigraphy of northwestern Pennsylvania and a resume of gas and oil possibilities of deeper sands**, by C. R. Fettke. 1935. 23 p., 4 figs. *
- *PR 115 **Structure and stratigraphy of Fayette County** (prelim. rept.), by F. T. Moyer. 1937. 20 p., 1 map. (See C 26) *
- *PR 116 **Bradford oil field** (prelim. rept.), by C. R. Fettke. 1937. 17 p., 5 figs. (See M 21) *
- *PR 117 **Supplementary record of "deep sand" wells in Pennsylvania**, by S. H. Cathcart. 1937. 27 p., 5 figs. *
- PR 118 **Geology of the oil and gas fields in the Tidioute quadrangle** (prelim. rept.), by S. H. Cathcart and others. 1938. 15 p., 7 maps, 1 fig., 181 well records free
- *PR 119 **The Canadian System**, by G. H. Ashley. 1938. 7 p. *
- *PR 120 **Structure and stratigraphy of the Brookville quadrangle** (prelim. rept.), by C. K. Graeber. 1939. 9 p., 4 figs., including geologic structure map. (Replaced by A 54) *
- *PR 121 **Structure and stratigraphy of the Smicksburg quadrangle** (prelim. rept.), by M. N. Shaffner. 1939. 12 p., geologic structure map, columnar section, and 25 plotted well records. (Replaced by A 55) *
- PR 122 **Geology of the oil and gas fields of the Hilliards quadrangle**, by R. E. Sherrill and L. S. Matteson. 1939. 25 p., 4 maps, and 238 well records 0.15
- *PR 123 **Oil mining possibilities in Pennsylvania**, by P. A. Dickey. 1939. 31 p., 10 figs. *
- *PR 124 **Summit gas pool, Fayette County, Pennsylvania**, by C. R. Fettke. 1940. 31 p., 1 fig. *
- *PR 125 **Music Mountain oil pool and other oil pools in Lafayette Township, McKean County, Pennsylvania**, by C. R. Fettke. 1941, 34 p., 9 figs. *
- *PR 126 **The Upper Devonian and lower Mississippian of southwestern Pennsylvania**, by W. M. Laird. 1941. 23 p. *
- PR 127 **Subsurface sections across western Pennsylvania**, by C. R. Fettke. 1941. 57 p., 1 map 0.50
- *PR 128 **Manganese minerals in Pennsylvania**, by R. M. Foose. 1942. 22 p., 3 figs. (see M 27) *
- *PR 129 **Electrical well logging in the eastern states**, by P. A. Dickey. 1942. 30 p., 20 figs. *
- *PR 130 **Anthracite reserves**, by G. H. Ashley. 1945. 13 p. *
- *PR 131 **Haskell Sand core from the Coryville pool, McKean County, Pennsylvania**, by C. R. Fettke and W. H. Seifert. 1946. 9 p., 1 fig. (a limited edition for the oil industry) *
- *PR 132 **Topographic maps**, by R. C. Stephenson. 1949. 20 p., 9 figs. .. *
- PR 133 **Gas in Leidy Township, Clinton County, Pennsylvania**, by S. H. Cathcart. 1950. 15 p., 3 figs. free
- *PR 134 **Preliminary report, Leidy gas field and adjacent areas, Clinton County, Pennsylvania**, by J. R. Ebright and A. I. Ingham. 1951. (replaced by M 34) *

*PR 135	Oil and gas developments in Pennsylvania in 1950 , by Chas. R. Fettke. 1951. 10 p., 1 pl.	*
PR 136	Preliminary report on certain limestone and dolomites of Berks County, Pennsylvania , by Carlyle Gray. 1951. 85 p., 7 figs., 1 pl.	0.50
*PR 137	Preliminary report, geology and mineral resources of the New Florence quadrangle , by M. N. Shaffner. 1951. (replaced by A 57)	*
PR 138	Geologic structures of the northern plateau region of Pennsylvania , by A. I. Ingham. 1951. (revision of Bull. 108, pl. 2) ...	free
PR 139	Oil and gas developments in Pennsylvania in 1951 , by C. R. Fettke. 1952. 20 p., 4 figs., 2 pls.	free
PR 140	The high calcium limestones of the Annville belt in Berks and Lebanon Counties, Pennsylvania , by Carlyle Gray. 1952. 19 p., 6 figs., 2 pls.	0.50
*PR 141	Preliminary report, geology and mineral resources of the Donegal quadrangle , by M. N. Shaffner. 1952. (replaced by A 48)	*
PR 142	Geologic structure of parts of the Chestnut Ridge and Driftwood anticlines in Clearfield and Elk Counties, Pennsylvania , by R. C. Bolger. 1953. Map with text on back	0.30
PR 143	Oil and gas developments in Pennsylvania in 1952 , by C. R. Fettke. 1953. 29 p., 4 figs., 3 pls.	0.25
PR 144	Oil and gas developments in Pennsylvania in 1953 , by C. R. Fettke. 1954. 15 p., 2 pls.	0.20
PR 145	Occurrence of rock salt in Pennsylvania , by C. R. Fettke. 1955. Map with text on back	0.25
PR 146	Ground-water resources of the Lansdale area , by D. R. Rima. 1955. 25 p., 4 figs., 7 pls.	0.40
PR 147	Oil and gas developments in Pennsylvania in 1954 , by C. R. Fettke and W. S. Lytle. 1955. 12 p., 1 fig.	free
PR 148	Summary secondary recovery operations in Pennsylvania to January 1, 1954, including petroleum reserves and production by counties , by W. S. Lytle. 1955. 23 p., 7 figs.	0.15
*PR 149	Geology and mineral resources of southern Somerset County , by N. K. Flint. 1956. (replaced by C 56a)	*
PR 150	Oil and gas developments in Pennsylvania in 1955 , by C. R. Fettke and W. S. Lytle. 1956. 23 p., 3 figs., 2 pls.	free
PR 151	Oil and gas developments in Pennsylvania in 1956 , by W. S. Lytle. 1957. 33 p., 5 figs., 3 pls.	free
*PR 152	Preliminary report on the sedimentary uranium occurrences in the State of Pennsylvania , by J. F. McCauley. 1957. (replaced by M 43)	*
PR 153	Preliminary report on the chromite occurrence at the Wood Mine, Lancaster County, Pennsylvania , by D. M. Lapham. 1958. 11 p., 2 pls.	free
PR 154	Oil and gas developments in Pennsylvania in 1957 , by Wm. S. Lytle and others. 1958. 34 p., 4 figs., 5 pls.	free
*PR 155	Oil and gas developments in Pennsylvania in 1958 , by Wm. S. Lytle and others. 1959. 44 p., 4 figs.	*
*PR 156	Subsurface Cambro-Ordovician stratigraphy of northwestern Pennsylvania and bordering regions , by W. R. Wagner. 1961. 20 p., 1 fig., 1 pl. (replaced by G 49)	*

*PR 157	Oil and gas developments in Pennsylvania in 1959 , by W. S. Lytle and others. 1960. 55 p., 5 figs., 6 pls.	*
PR 158	Oil and gas developments in Pennsylvania in 1960 , by W. S. Lytle and others. 1961. 50 p., 5 figs., 7 pls.	free
PR 159	Some geological factors affecting the Upper Freeport coal and its quality , by E. F. Koppe. 1961. 5 p.	free
PR 160	Oil and gas developments in Pennsylvania in 1961 , by W. S. Lytle and others. 1962. 55 p., 3 figs., 9 pls.	free
PR 161	The Precambrian geology of the Reading 15' quadrangle , by T. V. Buckwalter. 1963. 49 p., 2 pls. including 2-color geologic map. Scale 1:24,000	1.75
*PR 162	Oil and gas developments in the Youngsville-Sugar Grove Field of Warren County, Pennsylvania , by W. H. Seifert and W. S. Lytle. 1963. 13 p., 3 figs., 4 tables (replaced by M 53)	*
*PR 163	Preliminary report of the oil and gas resources of the Warren 7½' quadrangle, Pennsylvania , by W. S. Lytle and L. A. Heeren. 1963. One sheet containing map, text, and tables (replaced by M 52) ..	*
PR 164	Bedrock geology of the Cedar Run quadrangle, Tioga and Lycoming Counties, Pennsylvania , by G. W. Colton. 1963. One sheet containing text, columnar section and geologic map. Scale 1:24,000	1.05
PR 165	Oil and gas developments in Pennsylvania in 1962 , by W. S. Lytle and others. 1963. 44 p., 6 figs., 9 tables	0.30
PR 166	Oil and gas developments in Pennsylvania in 1963 , by W. S. Lytle and others. 1964. 47 p., 8 figs., 10 tables	0.40
PR 167	Bedrock geology of the Slate Run quadrangle, Clinton, Lycoming, and Potter Counties, Pennsylvania , by G. W. Colton and S. J. Luft. 1965. One sheet containing text, columnar section and geologic map. Scale 1:24,000	1.10
PR 168	Oil and gas developments in Pennsylvania in 1964 , by W. S. Lytle and others. 1965. 55 p., 10 figs., 13 tables	0.50
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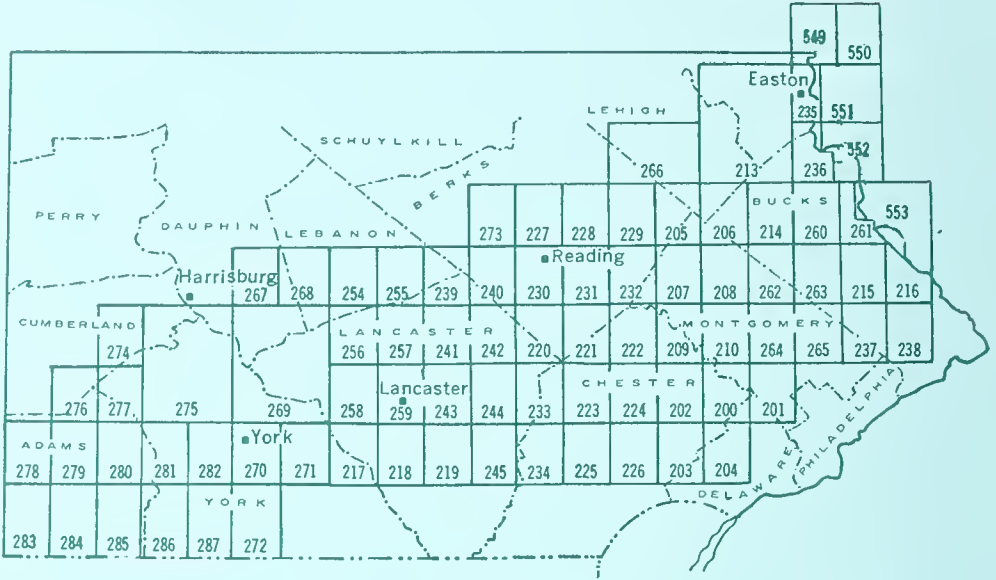
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Much additional information on Pennsylvania Geology is available in publications not covered by this list. The reader is referred to Pa. Geological Survey Bulletins G-34 and G-42 for a complete list of all articles on Pennsylvania Geology written before 1959.

Abbreviations used in this Key are as follows:

Pennsylvania 3rd (Commission) Survey—Pa. Geol. Survey (3rd)
 Pennsylvania Geological Survey, 4th series—Pa. Geol. Survey (4th)

A ——— Atlas Series
 C ——— County Reports
 IC ——— Information Circulars
 ES ——— Educational Series
 G ——— General Geology Reports
 M ——— Mineral Resource Reports
 Map ——— Map Series
 PG ——— Park Guides
 PR ——— Progress Reports
 SB ——— Special Bulletins
 W ——— Water Resource Reports
 WSR ——— Well-Sample Records

United States Geological Survey—U. S. Geol. Survey

B ——— Bulletins
 Cir ——— Circulars
 CI ——— Coal Investigations
 F ——— Folios
 GP ——— Geophysical Investigations
 GQ ——— Geologic Quadrangle Maps
 HA ——— Hydrologic Investigations Atlas
 I ——— Miscellaneous Geologic Investigations
 PP ——— Professional Paper
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- U. S. Geol. Survey: B1182K

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- Pa. Geol. Survey (3rd): 4, 8, 9, 11
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SOURCES OF OUT-OF-PRINT REPORTS

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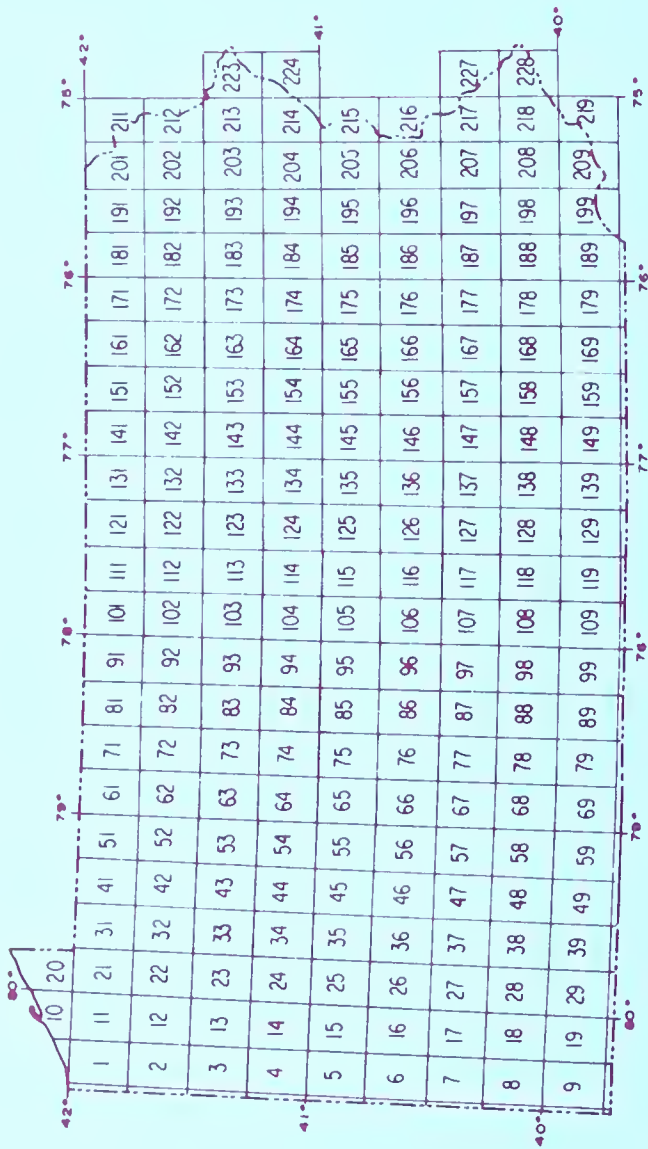
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- *PR 111 **Possibility of finding gas in the Oriskany sand of McKean County, Pennsylvania**, by S. H. Cathcart. 1934. 13 p., 3 figs. *
- *PR 112 **White clays of Pennsylvania**, by Henry Leighton. 1934. 19 p., 12 figs. (See M 17 and M 23) *
- *PR 113 **Pennsylvania geology summarized**, by Bradford Willard. 1935. 4th Edition (reprinted as ES 4) *
- *PR 114 **Subsurface stratigraphy of northwestern Pennsylvania and a resume of gas and oil possibilities of deeper sands**, by C. R. Fettke. 1935. 23 p., 4 figs. *
- *PR 115 **Structure and stratigraphy of Fayette County** (prelim. rept.), by F. T. Moyer. 1937. 20 p., 1 map. (See C 26) *
- *PR 116 **Bradford oil field** (prelim. rept.), by C. R. Fettke. 1937. 17 p., 5 figs. (See M 21) *
- *PR 117 **Supplementary record of "deep sand" wells in Pennsylvania**, by S. H. Cathcart. 1937. 27 p., 5 figs. *
- PR 118 **Geology of the oil and gas fields in the Tidioute quadrangle** (prelim. rept.), by S. H. Cathcart and others. 1938. 15 p., 7 maps, 1 fig., 181 well records *

* Out-of-print.

- *PR 119 **The Canadian System**, by G. H. Ashley. 1938. 7 p. *
- *PR 120 **Structure and stratigraphy of the Brookville quadrangle** (prelim. rept.), by C. K. Graeber. 1939. 9 p., 4 figs., including geologic structure map. (Replaced by A 54) *
- *PR 121 **Structure and stratigraphy of the Smicksburg quadrangle** (prelim. rept.), by M. N. Shaffner. 1939. 12 p., geologic structure map, columnar section, and 25 plotted well records. (Replaced by A 55) *
- PR 122 **Geology of the oil and gas fields of the Hilliards quadrangle**, by R. E. Sherrill and L. S. Matteson. 1939. 25 p., 4 maps, and 238 well records 0.15
- *PR 123 **Oil mining possibilities in Pennsylvania**, by P. A. Dickey. 1939. 31 p., 10 figs. *
- *PR 124 **Summit gas pool, Fayette County, Pennsylvania**, by C. R. Fettke, 1940. 31 p., 1 fig. *
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- *PR 134 **Preliminary report, Leidy gas field and adjacent areas, Clinton County, Pennsylvania**, by J. R. Ebright and A. I. Ingham. 1951. (replaced by M 34) *
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- *PR 137 **Preliminary report, geology and mineral resources of the New Florence quadrangle**, by M. N. Shaffner. 1951. (replaced by A 57) *
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PR 184	Oil and gas developments in Pennsylvania in 1971 , by W. S. Lytle and others. 1972. 39 p., 9 figs.	0.80

- PR 185 **Middle Devonian to Ordovician (Queenston) subsurface stratigraphy**, by Louis Heyman (in press)

SPECIAL BULLETINS (13½ x 18 inches) Map scales 1:24,000 (1" = 2000') unless indicated

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|-------|--|------|
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| SB 5 | Oil and gas field atlas of the Bradford quadrangle , by C. R. Fettke and Virginia Fairall. 1951. 10 maps, 2 tables | 1.25 |
| SB 6 | Oil and gas field atlas of the Smethport quadrangle , by C. R. Fettke and Virginia Fairall. 1951. 10 maps, 2 tables | 1.25 |
| SB 7 | Oil and gas field atlas of the Butler quadrangle , by W. S. Lytle and Lillian Heeren. 1955. 10 maps, 2 tables | 1.25 |
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| SB 9 | Oil and gas field atlas of the Foxburg quadrangle , by J. M. L. Bergsten and Lillian Heeren. 1961. 26 p., 9 colored maps, 4 pls. . . | 3.00 |
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WATER-RESOURCE REPORTS

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W 33	Geology and hydrology of the Shenango and Stoneboro 15 minute quadrangles, Mercer and Crawford Counties , by G. R. Shiner and G. E. Kimmel	(in press)
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W 35	Summary of ground water resources of Allegheny County , by J. Callaher	(in press)
W 36	Summary of ground water resources of Butler County , by C. W. Poth	(in press)
W 37	Summary of ground water resources of Westmoreland County , by T. G. Newport	(in preparation)
W 38	Summary of ground water resources of Washington County , by T. G. Newport	(in preparation)
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W 40	Summary of ground water resources of Luzerne County , by T. G. Newport	(in preparation)
W 41	Geology and ground water resources of Lackawanna County , by J. R. Hollowell	(in preparation)

WELL-SAMPLE RECORDS

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#40	Emma McKnight No. 1 well, Pymatuning Township, Mercer County , by W. R. Wagner. 1953. 33 p.	free
#41	Albert No. 1 well, Adams Township, Snyder County , by W. R. Wagner. 1958. 23 p.	free
#42-55	Superseded by Bulletin M 40.	
#56	Jesse B. Miller No. 1 well, Napier Township, Bedford County , by C. R. Fettke. 1960. 38 p.	0.15

SELECTED PUBLICATIONS

Pennsylvania's mineral heritage. Bureau of Statistics, Bureau of Topographic and Geologic Survey, and the Pennsylvania State University, School of Mineral Industries. 1944. 148 p., 29 figs.	0.50
Historical Statistics of Pennsylvania's mineral industries, 1759-1955. Bulletin of the Mineral Industries Experiment Station, No. 69, 1957. 93 p.	0.70
Pennsylvania Geology. A bimonthly publication issued by the Bureau of Topographic and Geologic Survey. Generally 16 p., illustrated in two colors. Series begins with Vol. 1, No. 1, August, 1969	free

**PENNSYLVANIA TOPOGRAPHIC AND GEOLOGIC
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(Third Survey)**

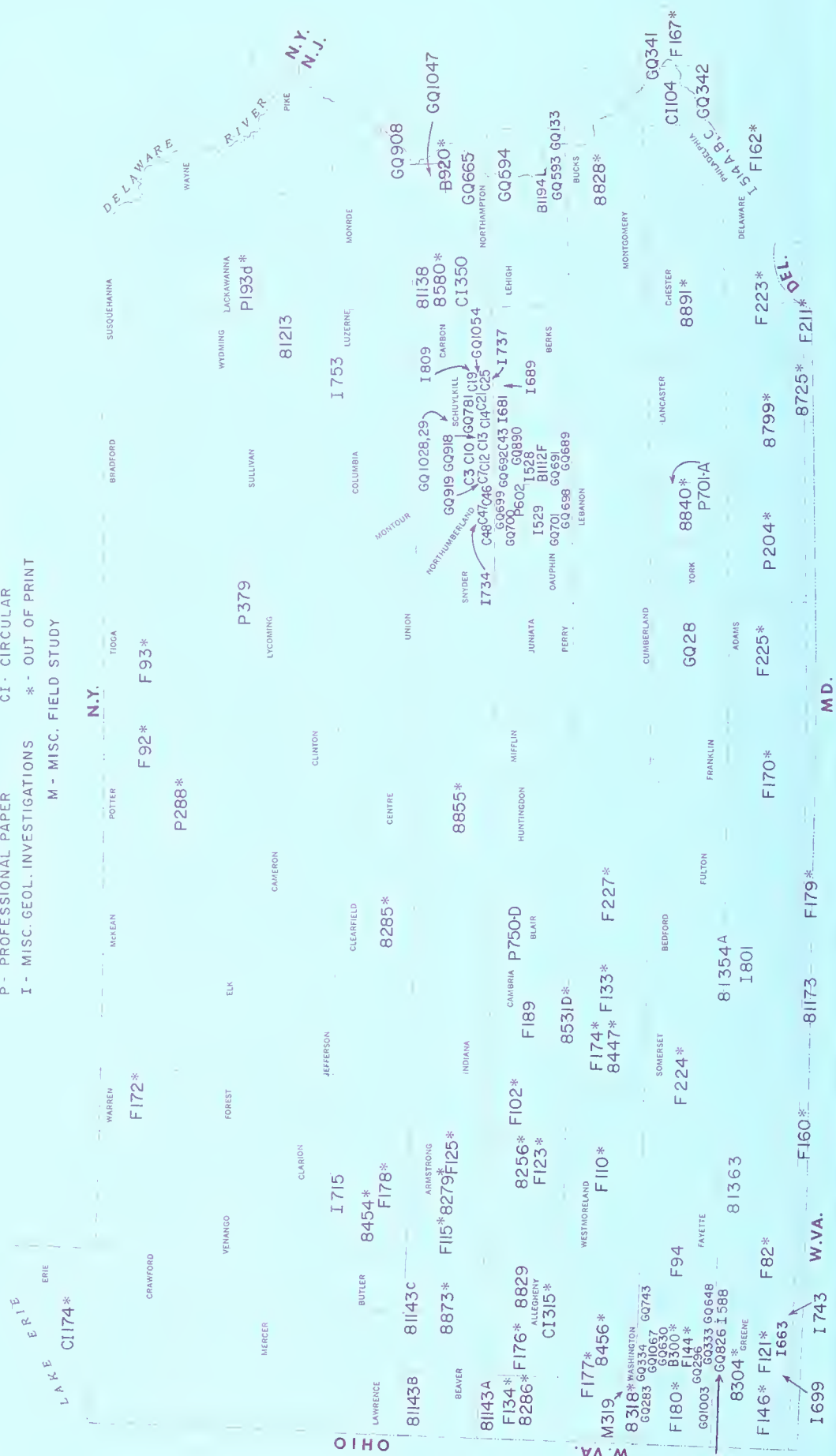
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| * 1 | Geology of the oil and gas fields of the Sewickley quadrangle , by M. J. Munn. 1910. 170 p., 10 pls. | * |
| * 2 | Geologic map of southwestern Pennsylvania . 1914. 29 p., 10 pls. | * |
| * 3 | Geology of the oil and gas fields of the Clarion quadrangle , by M. J. Munn. 1910. 112 p., 1 fig., 9 pls. | * |
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| * 8 | Mineral production of Pennsylvania , by R. R. Hice. 1911. 84 p. | * |
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| *10 | Broad-Top coal field , by J. H. Gardner. 1913. 82 p., 1 fig., 32 pls. | * |
| *11 | Mineral production of Pennsylvania , by R. R. Hice. 1913. 107 p. | * |
| *12 | Glass manufacture and the glass sand industry , by C. R. Fettke. 1919. 278 p., 108 pls. | * |

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- F - FOLIO
- GQ - GEOL. QUADRANGLE MAP
- B - BULLETIN
- C - COAL INVESTIGATIONS
- P - PROFESSIONAL PAPER
- CI - CIRCULAR
- I - MISC. GEOL. INVESTIGATIONS
- * - OUT OF PRINT

M - MISC. FIELD STUDY



M.D.

A - ATLAS

W - GROUND WATER

PR - PROGRESS REPORT
IC - INFORMATION CIRCULAR
CS - REPT. OF 3rd (Comm.) SURVEY
- MAP
* - OUT OF PRINT
N.Y.

C - COUNTY
EG - ENVIRONMENTAL GEOLOGY
G - GENERAL GEOLOGY
M - MINERAL RESOURCES
SB - SPECIAL BULLETIN
OF - OPEN FILE REPORT
N.Y.

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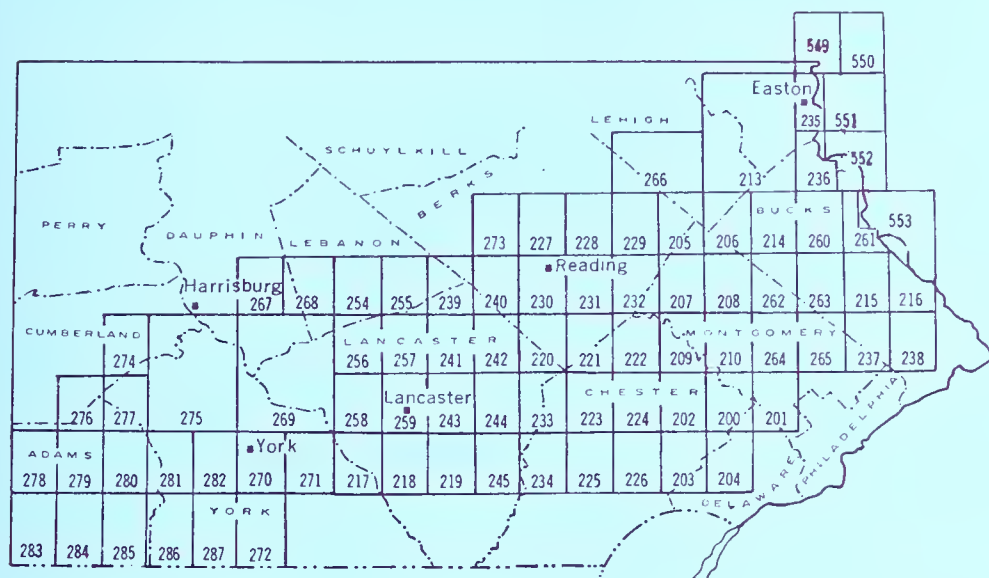
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Much additional information on Pennsylvania Geology is available in publications not covered by this list. The reader is referred to Pa. Geological Survey **Bulletins** G-34, G-42 and G-61 for a complete list of all articles on Pennsylvania Geology written before 1969.

Abbreviations used in this Key are as follows:

Pennsylvania 3rd (Commission) Survey—Pa. Geol. Survey (3rd)
Pennsylvania Geological Survey, 4th series—Pa. Geol. Survey (4th)

A ——— Atlas Series
C ——— County Reports
IC ——— Information Circulars
ES ——— Educational Series
EG ——— Environmental Geology Reports
G ——— General Geology Reports
M ——— Mineral Resource Reports
Map ——— Map Series
PG ——— Park Guides
PR ——— Progress Reports
SB ——— Special Bulletins
W ——— Water Resource Reports
WSR ——— Well-Sample Records

United States Geological Survey—U. S. Geol. Survey

B ——— Bulletins
Cir ——— Circulars
CI ——— Coal Investigations
F ——— Folios
GP ——— Geophysical Investigations
GQ ——— Geologic Quadrangle Maps
HA ——— Hydrologic Investigations Atlas
I ——— Miscellaneous Geologic Investigations
MF ——— Miscellaneous Field Investigations
PP ——— Professional Paper
WS ——— Water-Supply Papers

United States Bureau of Mines—U. S. Bur. Mines

B ——— Bulletins
I ——— Information Circulars
R ——— Report of Investigations
TP ——— Technical Paper

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Pa. Geol. Survey (4th): A54, 55, 65, 74AB; IC4; Map 19, 23; M2, 4, 6, 11, 15, 19, 20, 23, 31, 32, 39, 45, 50, 51; OF1; PR148; 150, 151, 154, 157; W3

U. S. Bur. Mines: R4840, 4941

JUNIATA

Pa. Geol. Survey (3rd): 8, 11

Pa. Geol. Survey (4th): A127, 136; G19, 29; IC4, 64, M15, 18, 20, 23, 39, 45, 50, 51; PR144, 155; W5, 27

U. S. Geol. Survey: CP669

LACKAWANNA

Pa. Geol. Survey (3rd): 8, 11

Pa. Geol. Survey (4th): G7, 9, 39; IC4; M8, 15, 20, 23, 45; PG3; PR130, 151; W4, 41

U. S. Geol. Survey: B1213, 1317A; GP667; PP193D

U. S. Bur. Mines: B494; R736A

LANCASTER

- Pa. Geol. Survey (3rd): 4, 8, 11
Pa. Geol. Survey (4th): A168, 177C, 177D, 178; G3, 7, 33, 43; IC4, 14, 31, 32, 33, 34, 37, 41; M5, 11, 15, 16, 20, 23, 27, 50, 51, 63; PR153, 171; W2, 23, 26
U. S. Geol. Survey: B799, 840, 891, 1254G, 1314C; GP217, 218, 219, 220, 233, 234, 239, 240, 241, 242, 243, 244, 245, 255, 256, 257, 258, 259, 269, 577; PP700D
U. S. Bur. Mines: R4247, 4383

LAWRENCE

- Pa. Geol. Survey (3rd): 4, 8, 11
Pa. Geol. Survey (4th): A5; G7, 32; IC4; Map 21, 26, 28, 29; M2, 4, 6, 15, 17, 20, 31, 32, 45, 51; PR151; W3, 15, 16
U. S. Geol. Survey: B873, 1143B
U. S. Bur. Mines: R7324

LEBANON

- Pa. Geol. Survey (3rd): 8, 11
Pa. Geol. Survey (4th): A157D, 167CD, 177C; G3, 19, 31, 33, 35, 37, 43; IC4, 41; M11, 15, 16, 20, 23, 27, 50, 51, 63; PR130; W2, 4, 18
U. S. Geol. Survey: B359, 1271D; GP239, 254, 255, 256, 669; GQ689, 692, 698

LEHIGH

- Pa. Geol. Survey (3rd): 4, 5, 6, 8, 11
Pa. Geol. Survey (4th): A195CD, 206; C39, G7, 16, 31, 33, 37, 45; IC4, 23, 24, 28, 42, 44; M5, 11, 16, 20, 23, 27, 50, 51, 63; W2, 30, 31
U. S. Geol. Survey: B1082E; GP205, 206, 213, 266, 669; PP400A
U. S. Bur. Mines: R4180

LUZERNE

- Pa. Geol. Survey (3rd): 4, 8, 11
Pa. Geol. Survey (4th): G9, 19, 26, 39; IC4, 65; M8, 15, 20, 23, 39, 45, 51; PR130, 144, 155; W4, 28, 40
U. S. Geol. Survey: B1213, 1317A; GP669; PP193D, 473B
U. S. Bur. Mines: R7364

LYCOMING

- Pa. Geol. Survey (3rd): 4, 8, 11
Pa. Geol. Survey (4th): G3, 7, 19, 39; IC4, M2, 11, 15, 20, 23, 27, 35, 39, 43, 45, 50, 51; PR139, 143, 144, 147, 151, 152, 164, 167, 174; W6
U. S. Geol. Survey: GP669; PP379

McKEAN

- Pa. Geol. Survey (3rd): 6, 11, 12
Pa. Geol. Survey (4th): G19; IC4; Map 5, 17; M6, 11, 15, 18, 19, 20, 21, 23, 31, 32, 39, 40, 45, 62; OF1; PR125, 131, 143, 151, 155; W6
U. S. Bur. Mines: R4842, 6943

MERCER

- Pa. Geol. Survey (3rd): 8, 11
Pa. Geol. Survey (4th): G32, 55; IC62; Map 26, 28; M2, 4, 6, 11, 15, 20, 23, 31, 32, 39, 45; PR143, 147, 148; W3, 15, 16, 33; WSR40

MIFFLIN

- Pa. Geol. Survey (3rd): 8, 11
Pa. Geol. Survey (4th): G3, 19, 29; IC4; M11, 18, 20, 23, 50; W5, 27

MONROE

Pa. Geol. Survey (3rd): 4, 8, 11, 12

Pa. Geol. Survey (4th): G3, 4, 7, 11, 19, 23, 39, 57, 60; IC4; M15, 20, 23, 27, 50, 51, 63; W4

U. S. Geol. Survey: B1317A; GP669; GQ908, 1047; PP550B

MONTGOMERY

Pa. Geol. Survey (3rd): 8, 11

Pa. Geol. Survey (4th): G3, 43; IC4, 18, 19, 23, 24, 25, 27, 40, 42; M5, 13, 15, 20, 23, 27, 50, 51; PR146: W2, 14, 22, 29

U. S. Geol. Survey: B828, 891; GP200, 201, 205, 206, 207, 208, 209, 210, 232, 237, 262, 263, 264, 265, 577; I514A, B, C

U. S. Bur. Mines: R4666

MONTOUR

Pa. Geol. Survey (3rd): 8, 11

Pa. Geol. Survey (4th): G3, 7, 19; IC4; M11, 15, 20, 23, 50; W4

U. S. Geol. Survey: GP 669

NORTHAMPTON

Pa. Geol. Survey (3rd): 4, 5, 6, 8, 11

Pa. Geol. Survey (4th): A195CD, 206; C48; G7, 10, 11, 16, 31, 33, 37, 45, 57; IC4, 28, 29; M9, 15, 16, 20, 23, 27, 63, 64; W2, 30

U. S. Geol. Survey: B920; 1194L; 1271D; GP213, 235, 236, 549, 550, 551, 568, 570, 571, 577; GQ593, 594, 665, 1047; I552; PP400A, 550B

NORTHUMBERLAND

Pa. Geol. Survey (3rd): 8, 11

Pa. Geol. Survey (4th): A146; G3, 4, 7, 13, 19, 39; IC4, M5, 8, 11, 15, 20, 23, 39, 43, 45, 50, 51, 64; PR130, 147, 150; W4

U. S. Geol. Survey: B1271D; C13, 7, 10, 12, 46, 47, 48; GP669, 700; GQ919; I529, 734

PERRY

Pa. Geol. Survey (3rd): 4, 8, 11

Pa. Geol. Survey (4th): A127, 136, 137AB, 137CD; 146; G3, 4, 8, 19, 29, 30; IC4; M15, 20, 23, 51; W5, 27

U. S. Geol. Survey: GP669

PHILADELPHIA

Pa. Geol. Survey (3rd): 6, 8, 11

Pa. Geol. Survey (4th): G41; IC4; M15, 20, 23, 27, W2, 13

U. S. Geol. Survey: F162; GP577; I514A, B, C; WS110, 1586C

PIKE

Pa. Geol. Survey (3rd): 8, 11

Pa. Geol. Survey (4th): A223; G4, 19, 39, 60; IC65; M15, 20, 23, 45, 51; PR155; W4

U. S. Geol. Survey: B1317A; GQ908

POTTER

Pa. Geol. Survey (3rd): 8

Pa. Geol. Survey (4th): G4, 19; IC4; M6, 15, 18, 19, 20, 23, 30, 31, 39, 40, 45; PR135, 139, 143, 144, 147, 148, 150, 151, 154, 155, 157, 167; W6

U. S. Geol. Survey: F92; PP288

SCHUYLKILL

Pa. Geol. Survey (3rd) : 8, 11

Pa. Geol. Survey (4th) : G7, 14, 19, IC4; M15, 20, 23, 50, 51, 63, 64; PR130; W4

U. S. Geol. Survey: B1112F, 1271D; C113, 14, 19, 21, 43; GP669; CQ689, 690, 691, 692, 698, 699, 700, 781, 918, 919, 1054; 1528, 529, 681, 689, 737

SNYDER

Pa. Geol. Survey (3rd) : 8, 11

Pa. Geol. Survey (4th) : A136, 146; G3, 19; IC4; M15, 18, 20, 23, 50; PR151, 154; W5, 27; WSR41

U. S. Geol. Survey: GP669

SOMERSET

Pa. Geol. Survey (3rd) : 4, 8, 11

Pa. Geol. Survey (4th) : C56A; G39; IC4; Map 24, 33, 34, 35; M4, 6, 15, 20, 23, 27, 31, 45, 50, 51; PR144, 149, 155, 157

U. S. Geol. Survey: B1353; F160, 224

U. S. Bur. Mines: R4834, 4998, 5269

SULLIVAN

Pa. Geol. Survey (3rd) : 8, 11

Pa. Geol. Survey (4th) : G7, 33, 39; IC66; M15, 20, 23, 27, 39, 43, 45; PR130, 139, 150, 152; W6

U. S. Geol. Survey: GP669; PP379

SUSQUEHANNA

Pa. Geol. Survey (3rd) : 8, 11

Pa. Geol. Survey (4th) : G19, 39; IC4, 65, 66; M15, 18, 20, 23, 27, 51; PR130, 154, 157; W4

U. S. Geol. Survey: B1317A; GP669

TIOGA

Pa. Geol. Survey (3rd) : 4, 8, 11

Pa. Geol. Survey (4th) : G4, 19, 39; IC4, 66; M2, 6, 15, 18, 20, 23, 27, 31, 32, 40, 45; PG5, PR135, 143, 148, 150, 151, 154, 155, 157, 164; W6

U. S. Geol. Survey: F92, 93

UNION

Pa. Geol. Survey (3rd) : 4, 8, 11

Pa. Geol. Survey (4th) : G3, 7; IC4; M15, 18, 20, 23, 39, 45, 50, 51; PR147, 150

U. S. Geol. Survey: GP669

VENANGO

Pa. Geol. Survey (3rd) : 4, 8, 11

Pa. Geol. Survey (4th) : G7, 32, 55; IC4, 62; Map 16, 18, 26; M4, 6, 11, 19, 20, 22, 23, 34, 25, 27, 31, 32; PR122, 148; SB2, 3, 4, 9; W3

U. S. Geol. Survey: B454

U. S. Bur. Mines: R6942

WARREN

Pa. Geol. Survey (3rd) : 8, 11, 12

Pa. Geol. Survey (4th) : G7, 19, 32, 55; IC4, 62; Map 4, 6, 16, 17; M6, 15, 18, 19, 20, 22, 23, 31, 38, 45, 52, 53, 62; OF1; PR144, 148, 150, 154, 157, 162, 163; SB4; W3

U. S. Geol. Survey: F172

U. S. Bur. Mines: R6471

WASHINGTON

Pa. Geol. Survey (3rd): 8, 11

Pa. Geol. Survey (4th): G39, 56, 56A, 62; IC4; Map 25, 30, 31, 32; M2, 4, 6, 15, 17, 18, 19, 20, 28, 29, 31, 32, 50, 51, 54; OF1, 6; PR147, 148; SB1; W1, 38

U. S. Geol. Survey: B300, 456; F94, 144, 177, 180; GQ283, 296, 333, 334, 743, 838, 1003; MF319; PP450C, 621

U. S. Bur Mines: R5109, 5475, 7131

WAYNE

Pa. Geol. Survey (3rd): 8, 11

Pa. Geol. Survey (4th): G19, 39; IC4; M15, 20, 23, 45, 51; PR130, 151, 155, 157; W4

U. S. Geol. Survey: B1317A; GP669

WESTMORELAND

Pa. Geol. Survey (3rd): 8, 11, 12

Pa. Geol. Survey (4th): A36, 37, 48; G3, 39; IC4; Map 21, 22, 24, 25, 33; M2, 4, 6, 10, 11, 15, 17, 19, 20, 31, 39, 45, 50, 51; OF1, 6; PR135, 139, 144, 147, 150, 151, 154, 155, 157; W37

U. S. Geol. Survey: B659; F110, 224

U. S. Bur. Mines: R4803, 4823, 5374

WYOMING

Pa. Geol. Survey (3rd): 4, 8, 11

Pa. Geol. Survey (4th): G7, 39; IC4, 66; M15, 20, 23, 27, 43; PR144, 152, W4

U. S. Geol. Survey: B1213, 1317A; GP669; PP210B, 379

YORK

Pa. Geol. Survey (3rd): 4, 8, 11

Pa. Geol. Survey (4th): C67; G3, 7, 33, 43; EG4, 5; IC4, 31, 45, 46; M5, 11, 15, 18, 20, 23, 27, 50, 51, 63

U. S. Geol. Survey: B799, 840, 969A; GP217, 270, 271, 272, 274, 275, 277, 281, 282, 286, 287; GQ28

U.S. Bur. Mines: R4145

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Pa. Geol. Survey (3rd): 8, 9, 11

Pa. Geol. Survey (4th): C1; IC13, M18

U. S. Geol. Survey: B624, 828, 891; F162, 167, 225

ALUMINUM

Pa. Geol. Survey (4th): G1

U. S. Geol. Survey: B465

ANTHRACITE, see Coal**ASBESTOS**

Pa. Geol. Survey (3rd): 9

Pa. Geol. Survey (4th): C1; G1; M18

U. S. Geol. Survey B624, 920, 1182K; F225

BARITE

- Pa. Geol. Survey (3rd): 9
- Pa. Geol. Survey (4th): A96; C9; G1; IC17; M18
- U. S. Geol. Survey: B624, 855; F170

BERYL

- Pa. Geol. Survey (3rd): 9
- U. S. Geol. Survey: B626

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- Pa. Geol. Survey (3rd): 5, 8, 9, 11
- Pa. Geol. Survey (4th): A206; C48; G1; IC2
- U. S. Geol. Survey: B447, 624, 855; F82, 170, 174

CHROMIUM

- Pa. Geol. Survey (3rd): 9
- Pa. Geol. Survey (4th): G1; IC14; PR153
- U. S. Geol. Survey: B624, 725, 799, 1082K; F211
- U. S. Bur. Mines: R4383

CLAY (Shale, Fire Clay, Brick Clay)

- Pa. Geol. Survey (3rd): 8, 9, 11
- Pa. Geol. Survey (4th): A5, 27, 36, 37, 54, 55, 57, 65, 74AB, 74CD, 75, 84CD, 85AB; 95A, 96, 109A, 119AB, 119CD, 127, 136, 137AB, 137CD, 146, 168, 177C, 177D, 195CD, 206; C1, 9, 26, 30, 39, 56A, 67; G1, 43, 54, 56, 56A, 57, 62; IC2, 67; Map 12, M10, 17, 23, 50, 51, 55, 57, 63; PR169
- U. S. Geol. Survey: B256, 279, 286, 300, 447, 624, 840, 855, 873, 891, 930, 1363; F82, 92, 93, 94, 102, 110, 115, 121, 123, 125, 133, 134, 144, 163, 167, 170, 172, 174, 177, 178, 179, 180, 189, 223, 224, 225, 227; GQ28, PP204, 525D, 650B, 700C

COAL (Bituminous Coal, Anthracite)

- Pa. Geol. Survey (3rd): 8, 9, 10, 11
- Pa. Geol. Survey (4th): A5, 27, 36, 37, 48, 54, 55, 57, 65, 74AB, 74CD, 75, 84CD, 85AB, 95A, 178; C26, 30, 56A; ES7; G1, 56, 56a, 62; IC72; Map 2; M2, 4, 6, 8, 12, 42, 48, 55, 66; PR130, 159
- U. S. Geol. Survey: B256, 279, 285, 286, 300, 318, 447, 454, 624, 659, 840, 873, 995A, 1112F, 1117C, 1143A, 1143B, 1143C; C13, 7, 10, 12, 13, 14, 19, 21, 25, 43, 46, 47, 48; F82, 92, 94, 102, 110, 115, 121, 123, 125, 126, 133, 134, 144, 172, 174, 177, 179, 224, 227, 256; 1528, 529, 681, 689, 715, 737; PP193D, 602, 621
- U. S. Bur. Mines: 17213, 8274, 8409, 8453; R4734, 4747, 4757, 4763, 4768, 4801, 4803, 4807, 4815, 4823, 4834, 4840, 4894, 4941, 5003, 5101, 5109, 5143, 5166, 5231, 5269, 5314, 5374, 5455, 5475, 5492, 5609, 5927, 6261, 6989, 7086, 7131, 7174, 7364

COBALT

- Pa. Geol. Survey (3rd): 9
- Pa. Geol. Survey (4th): G1, 35

COPPER

Pa. Geol. Survey (3rd): 8, 9, 11

Pa. Geol. Survey (4th): C1, 9, 48; G1, 35

U. S. Geol. Survey: B624, 828, 891, 1314C; F162, 167, 225

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DOLOMITE, see **Limestone**

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Pa. Geol. Survey (3rd): 8, 9, 11

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U. S. Geol. Survey: B624, 1182K; F225

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Pa. Geol. Survey (3rd): 9

U. S. Geol. Survey: B624, 855

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GARNET, see **Abrasives**

GLASS SAND, see **Sand**

GOLD

Pa. Geol. Survey (3rd): 9

Pa. Geol. Survey (4th): G1, 35

U. S. Geol. Survey: B624

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GRAPHITE

Pa. Geol. Survey (3rd): 6, 8, 9, 11

Pa. Geol. Survey, (4th): A206; C9, 39; G1

U. S. Geol. Survey: B624, 891, 1082K; F167

U. S. Bur. Mines: R4530

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Pa. Geol. Survey (3rd): 8, 9, 11

Pa. Geol. Survey (4th): A5, 27, 36, 54, 55, 57, 75, 84CD, 85AB, 95A, 96, 109A, 119AB, 119CD, 157D, 177C, 178, 206; C1, 26, 30, 39, 48, 56A, 67; ES3; G32; PR146, 171; W1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41

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Pa. Geol. Survey (3rd): 8, 9, 11

Pa. Geol. Survey (4th): A36, 54, 55, 57, 65, 96, 109A, 127, 167C, 168; C1, 9, 26, 39, 48, 67; G1, 35; M14, 18, 26, 49, 56

U. S. Geol. Survey: B279, 359, 447, 624, 799, 828, 840, 855, 873, 891, 920, 969A, 995D, 1182K; F82, 93, 115, 121, 125, 162, 170, 223, 224, 225, 227, 279; GQ28; PP204

U. S. Bur. Mines: R4145, 5165

LEAD (Zinc)

- Pa. Geol. Survey (3rd): 9
- Pa. Geol. Survey (4th): A96, 168; C9, 26, 39; G1; M5
- U. S. Geol. Survey: B855, 891, 920, 1314C; F162
- U. S. Bur. Mines: R4180, 4247, 4422, 4451, 4703, 4743

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- Pa. Geol. Survey (3rd): 8, 9, 11
- Pa. Geol. Survey (4th): A5, 27, 36, 37, 48, 54, 55, 57, 65, 75, 84CD, 85AB, 95A, 96, 109A, 119AB, 119CD, 127, 129A, 136, 137AB, 137CD, 146, 157D, 167CD, 168, 176, 177D, 178, 206; C1, 9, 26, 30, 39, 48, 56A, 67; G1, 26, 31, 35, 37, 38, 44, 45, 47, 52, 53, 56, 56A, 58; IC2, 60; M15, 20, 50; PR136, 140, 179, 180
- U. S. Geol. Survey: B256, 279, 286, 300, 447, 624, 799, 828, 840, 855, 873, 920, 1194L; F82, 92, 93, 94, 102, 111, 115, 125, 133, 134, 144, 146, 170, 174, 177, 178, 180, 189, 224, 225, 227; PP204, 700B

MAGNESITE

- U. S. Geol. Survey: B1182K

MANGANESE

- Pa. Geol. Survey (3rd): 9
- Pa. Geol. Survey (4th): C1, 39, 48; G1, M26, 27, PR128
- U. S. Geol. Survey: B624; F170, 225; GQ28
- U. S. Bur. Mines: R4312, 4326, 4436

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MICA

- Pa. Geol. Survey (3rd): 9, 11
- Pa. Geol. Survey (4th): A177C, 206; G1
- U. S. Geol. Survey: B624

MINERAL PIGMENTS (Mineral Paint)

- Pa. Geol. Survey (3rd): 4, 8, 9, 11
- U. S. Geol. Survey: B624

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- Pa. Geol. Survey (3rd): 9
- U. S. Geol. Survey: B624

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NICKEL

- Pa. Geol. Survey (3rd): 8, 9
- Pa. Geol. Survey (4th): G1
- U. S. Geol. Survey: B624, 799

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- Pa. Geol. Survey (3rd): 1, 3, 8, 9, 11
- Pa. Geol. Survey (4th): A27, 48, 65, 74CD, 75, 84CD, 85AB, 95A; C26, 56A; ES8; Maps 3, 4, 5, 6, 10, 16, 17, 18, 19, 21, 22, 23, 24, 25, 26, 28, 29, 30, 31, 32, 33, 34; M1, 21, 22, 24, 25, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 45, 46, 52, 53, 54, 57, 59, 62, 65; PR122, 123, 124, 125, 127, 129, 138, 139, 142, 143, 144, 147, 148, 150, 151, 154, 155, 157, 160, 163, 165, 166, 168, 172, 173, 175, 177, 181, 183, 186; WRS38; 40, 41, 56
- U. S. Geol. Survey: B256, 279, 286, 300, 304, 318, 454, 456, 531D, 624, 829, 873; F82, 92, 94, 102, 110, 115, 121, 123, 125, 134, 144, 146, 172, 177, 178, 180, 189
- U. S. Bur. Mines: 18330, R4842, 5438, 6471, 6917, 6942, 6943, 7044

PEAT

Pa. Geol. Survey (4th): A206; G32; IC65
U. S. Geol. Survey: B624, 1317A; PP700D

PHOSPHATE

Pa. Geol. Survey (3rd): 9
Pa. Geol. Survey (4th): IC64; M18

PYRITE

Pa. Geol. Survey (3rd): 9, 11
Pa. Geol. Survey (4th): A206; C39, G1, 35

PYROPHYLLITE

Pa. Geol. Survey (4th): IC2

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Pa. Geol. Survey: C1, 67; IC2

RUTILE

U. S. Geol. Survey: B624, 1082K

SALT (Brine)

Pa. Geol. Survey (3rd): 8, 11
Pa. Geol. Survey (4th): G1; M18, 47, 58; PR145
U. S. Geol. Survey: B624; F110

SAND (Sand and Gravel, Moulding Sand, Glass Sand, Quartz)

Pa. Geol. Survey (3rd): 8, 11, 12
Pa. Geol. Survey (4th): A27, 36, 54, 55, 84CD, 109A, 119CD, 168, 177C, 178, 195CD, 206, 214C; C9, 26, 30, 39; G1, 10, 32, 55, 57, 60, 61, 63; IC2; M3, 11, 64
U. S. Geol. Survey: B279, 286, 447, 624, 799, 828, 840, 855, 891, 1121B; F82, 94, 115, 162, 167, 172, 177; PP204, 288, 379

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Pa. Geol. Survey (3rd): 8
Pa. Geol. Survey (4th): A5, 27, 36, 37, 48, 55, 57, 74AB, 74CD, 75, 84CD, 85AB, 95A, 109A, 119CD, 127, 136, 137AB, 137CD, 146, 177C, 195CD; C26, 30; G1, 54, 62; M15
U. S. Geol. Survey: B256, 286, 300, 624, 873; F82, 102, 125, 134, 144, 146, 177, 178, 180

SCHEELITE (Tungsten)

Pa. Geol. Survey (3rd): 9

SERPENTINE

Pa. Geol. Survey (3rd): 9
Pa. Geol. Survey (4th): M15
U. S. Geol. Survey: B624, 920, 1082K

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Pa. Geol. Survey (3rd): 9
Pa. Geol. Survey (4th): G1, 35
U. S. Geol. Survey: B799, 855, 1314C

SLATE

Pa. Geol. Survey (3rd) : 8, 9, 11

Pa. Geol. Survey (4th) : A195CD, 206; C1, 39, 48; G1; IC2; M9

U. S. Geol. Survey: B624, 920, 1182K

STONE (Building Stone, Crushed Stone, Ganister, Granite), see also specific type of stone

Pa. Geol. Survey (4th) : A48, 96, 109A, 119CD, 168, 177C, 206; C1, 9, 39, 48, 67; G44, 54; IC66; M15

U. S. Geol. Survey: B279, 447, 828, 840, 855, 891; F82, 92, 94, 110, 115, 121, 133, 162, 167, 170, 172, 174, 211, 223, 227, 279; PP204

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U. S. Geol. Survey: B624, 920, 1182K

URANIUM

Pa. Geol. Survey (3rd) : 9

Pa. Geol. Survey (4th) : IC5; M43; PR152

U. S. Geol. Survey: Cir 350; PP455AF, 455G

VERMICULITE

Pa. Geol. Survey (4th) : M18

WATER RESOURCES, see **Ground water****ZINC**, see **Lead**

G 345.17/9

75



PENNSYLVANIA GEOLOGICAL PUBLICATIONS



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
TOPOGRAPHIC AND GEOLOGIC SURVEY

Arthur A. Socolow, State Geologist

PENNSYLVANIA STATE LIBRARY

PUBLICATIONS ON THE GEOLOGY OF PENNSYLVANIA

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United States Geological Survey

United States Bureau of Mines

1975

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To find the numbers of the reports covering the topic in which you are interested, refer to the index listing of reports in the back of this pamphlet. Publications are indexed by county or by commodity. Before ordering a publication, refer to the list of publications to find the title, description, and price of the item in which you are interested, and whether or not the publication is in print.

In ordering publications or maps, please follow the instructions on pages 3 and 4 to avoid needless delay in processing your order.

Should you desire additional information, the Topographic and Geologic Survey will be glad to assist you in any manner.

Very truly yours,

Arthur A. Socolow
State Geologist

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HOW TO OBTAIN TOPOGRAPHIC MAPS OF PENNSYLVANIA

Topographic maps of Pennsylvania are prepared by the United States Geological Survey in cooperation with the Bureau of Topographic and Geologic Survey. Persons wishing to know the names and scales of topographic maps which are available for Pennsylvania may obtain an **Index to Topographic Mapping in Pennsylvania** free on request from either:

Pennsylvania Geological Survey
Department of
Environmental Resources
Harrisburg, Pa. 17120

Or Map Information Service
U. S. Geological Survey
Washington, D. C. 20242

Topographic maps may be purchased from the U. S. Geological Survey by addressing the request to:

Washington Distribution Center
Geological Survey
1200 S. Eads Street
Arlington, Va. 22202

On such orders, customers should state the name of the map as well as the type of map desired and are urged to use order blanks supplied with the Index to Topographic Mapping in Pennsylvania mentioned above. Orders must be accompanied by cash, check, or money order in the exact amount. Stamps will not be accepted as payment.

At slightly higher costs, maps may be purchased across the counter at the agents in Pennsylvania listed below:

BETHLEHEM

H. M. Paul & Son

BLAKESLEE

The Outdoor Store

BROOKVILLE

DeMans

CLAY

Clay Book Store

CROSS FORK

Anderson's Esso Service

DOVER

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DOYLESTOWN

Alfred B. Patton, Inc.

EAST STROUDSBURG

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ERIE

Commercial Blue Print & Supply Co.

D. J. Burgnon Co.

HANOVER

J. W. Fischer & Son

HAWLEY

J. Vance Hunt & Son

HAZLETON

Deemer & Co.

HUNTINGDON

Stephen V. Hine, Inc.

INDIANA

Henry Hall, Inc.

JOHNSTOWN

Turner's Key Shop

Warren Phenicie

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L. B. Herr & Son

LEHIGHTON

Robert P. McCombs Associates

LEMOYNE

Camp Hill Distributors

LEWISTOWN

Aurand's

LOCK HAVEN

Fin-Fur Feather Trading Post

MEADVILLE

Hunters News

MILFORD

Sportsmen's Rendezvous

MILLHEIM

H. G. Gilmore

MORRIS

Miller's Store

PAOLI

Bookmark

PHILADELPHIA

J. L. Smith Co.

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READING

Moyer's Stationery, Inc.

SAINT MARYS

Smith's Sport Store

SCRANTON

Deemer & Co.

STROUDSBURG

Stroudsburg Sporting Goods

WATERVILLE

Love's Service Station

WELLSBORO

Linck Sporting Goods

WHITEHALL

Nestors Sporting Goods

WILKES-BARRE

Deemer & Co.

WILLIAMSPORT

Plankenhorn Stationery Co.

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**IMPORTANT! READ INSTRUCTIONS BELOW
BEFORE ORDERING**

HOW TO ORDER PUBLICATIONS

PENNSYLVANIA GEOLOGICAL SURVEY

Publications of the Pennsylvania Geological Survey are obtained from two places:
If the publication is **free** write to:

Pennsylvania Geological Survey
Department of
Environmental Resources
Harrisburg, Pa. 17120

If there is a charge for the publication, it can be obtained **only** from:

Dept. of Property and Supplies
Bureau of Publications
P. O. Box 1365
Harrisburg, Pa. 17125

Use order form inside back cover.

Enclose the cost of the publication with the order plus **6% State Sales Tax if the publication is to be mailed to a Pennsylvania address.** The sales tax is computed as follows: Less than 10c, no tax; 11c to 17c, 1c; 18c to 34c, 2c; 35c to 50c, 3c; 51c to 67c, 4c; 68c to 84c, 5c; 85c to \$1.10, 6c. For tax over \$1.10 add 6c for each dollar plus an amount as indicated by the preceding schedule.

Send cash, money order, or check payable to the **Commonwealth of Pennsylvania.** Stamps will not be accepted as payment.

U. S. GEOLOGICAL SURVEY and U. S. BUREAU OF MINES

Requests should be sent to the addresses below with payment in the form of cash, check, or money order. Order as follows:

Folios, maps, GQs and charts at the indicated cost from:

U. S. Geological Survey
Washington Map Distribution Section
1200 S. Eads Street
Arlington, Va. 22202

Reports of Investigations free from:

U. S. Bureau of Mines
4800 Forbes Avenue
Pittsburgh, Pa. 15213

All other reports at the indicated cost from:

Superintendent of Documents
U. S. Government Printing Office
Washington, D. C. 20402

THE GEOLOGICAL SURVEYS OF PENNSYLVANIA

There have been four geological surveys of Pennsylvania and four resulting series of publications:

First Survey, 1836-1854; Publications—6 annual reports, 2 quarto-volumes, and a state geologic map.

Second Survey, 1874-1887; Publications—81 volumes, 35 atlases, and a grand atlas.

Third (Commission) Survey, 1899-1919; Publications—6 biennial reports and 12 economic reports listed in this pamphlet.

Fourth Survey, 1919—: Publications listed in this pamphlet (fourth series).

All reports of the first three geological surveys and some of the reports of the present (fourth) survey are out-of-print. These reports are available for consultation in many libraries and at the Geological Survey.

MAP SCALES

Most maps published by the Pennsylvania and U. S. Geological Surveys are published at one of two scales—1:62,500 or 1:24,000. These scales are interpreted as follows: on a 1:62,500 map 1 inch on the map equals approximately 1 mile; on a 1:24,000 map 1 inch equals 2,000 feet. Other map scales cited in the List are followed by their equivalent distances.

SOURCES OF OUT-OF-PRINT REPORTS

The library of the Pennsylvania Geological Survey in Harrisburg is open for public use and contains all previous Pennsylvania Survey reports, as well as most of the U. S. Geological Survey, U. S. Bureau of Mines, and other governmental and institutional reports.

Many reports appearing in this list of publications are marked with an asterisk (*) indicating that they are out-of-print and no longer available for distribution.

Out-of-print reports are available for study in many libraries throughout the state, particularly those in larger cities and at colleges.

For the convenience of persons wishing to obtain copies of out-of-print reports of the Pennsylvania Geological Survey and the U. S. Geological Survey, listed below are a number of book dealers known to stock such reports.

CALIFORNIA

Zeitlin Periodicals Co. Inc., 817 South La Brea, Los Angeles 90036

COLORADO

Book Home, P. O. Box 825, Colorado Springs 80901

Collectors Center, 1028 East Ninth Ave., Denver 80218

CONNECTICUT

Geological Book Center, Box 7, Sharon 06069

P. and H. Bliss, Middletown 06457

MARYLAND

Samuel Ward, La Plata 20646

MASSACHUSETTS

J. S. Canner and Co., 49-65 Lansdowne St., Boston 02215

NEW YORK

Central Book Store, 850 DeKalb Ave., Brooklyn 11221

Walter J. Johnson, Inc., 111 Fifth Ave., New York 10003

Henry Tripp Inc., 92-06 Jamaica Ave., Woodhaven 11421

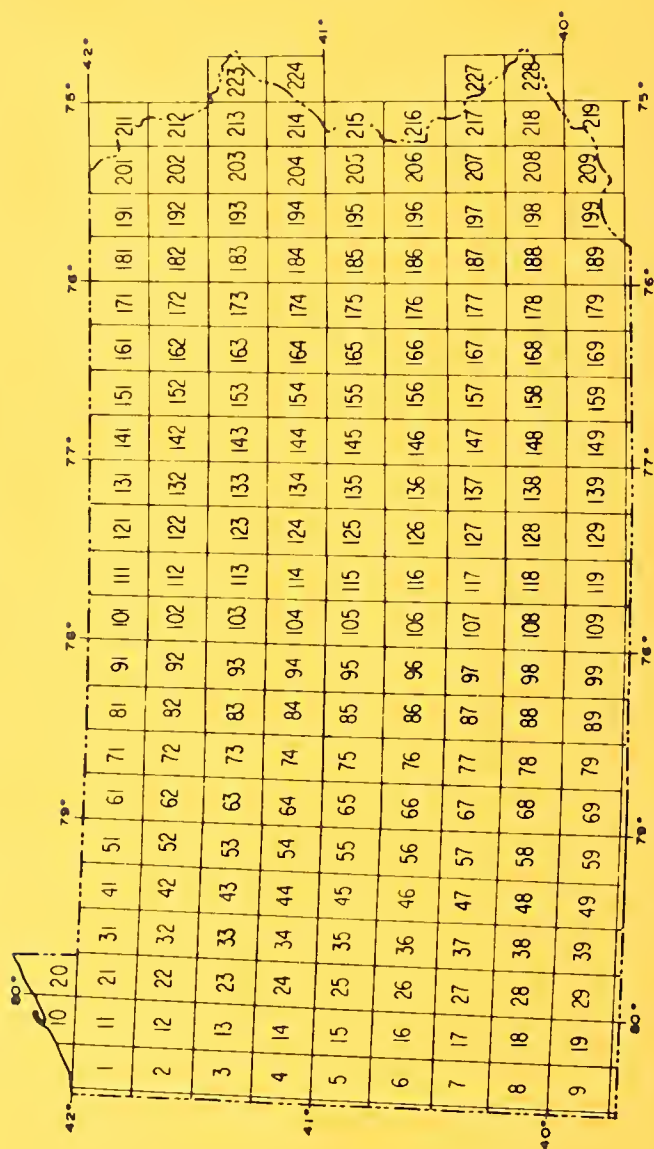
OHIO

Ohio Bookstore, 726 Main St., Cincinnati 45202

OREGON

Collectors Bookcase, P. O. Box 20203, Parkrose Station, Portland 97220

QUADRANGLE NUMBERING SYSTEM



LIST OF PUBLICATIONS

PENNSYLVANIA GEOLOGICAL SURVEY

Fourth Series

Order free publications from Pennsylvania Geological Survey, Department of Environmental Resources, Harrisburg, Pa. 17120 and priced publications from Department of Property and Supplies, Bureau of Publications, P. O. Box 1365, Harrisburg, Pa. 17125.

ATLAS SERIES Map scale 1:62,500 (1" = approx. 1 mile) unless stated 1:24,000 which is 1" = 2,000'.

A 5	New Castle quadrangle , by F. W. DeWolf. 1929. 238 p., 17 figs., 18 pls. including 1 topographic and 4 geologic maps	\$1.00
A 27	Pittsburgh quadrangle , by M. E. Johnson. 1928. 2nd printing 1969. 236 p., 29 figs., 33 pls. including 1 topographic and 3 geologic maps	8.75
A 36	Freeport quadrangle , by H. H. Hughes. 1933. 272 p., 72 figs., 10 pls. including 1 topographic and 2 geologic maps	1.75
A 37	Greensburg quadrangle , by M. E. Johnson. 1926. 2nd printing 1969. 162 p., 25 figs., 13 pls. including 1 topographic and 3 geologic maps	6.00
A 48	Donegal quadrangle , by M. N. Shaffner. 1963. 116 p., 16 figs., 4 pls. including geologic map and cross section	3.20
A 54	Brookville quadrangle , by C. K. Graeber and others. 1942. 2nd printing 1969. 136 p., 14 figs., 16 pls. including 1 topographic and 3 geologic maps	7.00
A 55	Smicksburg quadrangle , by M. N. Shaffner. 1946. 2nd printing 1969. 300 p., 103 figs., 11 pls. including 1 topographic, 1 geologic, and 1 mineral resources map	8.75
A 57	New Florence quadrangle , by M. N. Shaffner. 1958. 165 p., 16 figs., 13 pls. including geologic and mineral resources map	4.80
A 65	Punxsutawney quadrangle , by G. H. Ashley. 1926. 2nd printing 1969. 145 p., 26 figs., 6 pls. including 1 topographic and 3 geologic maps	7.00
A 74ab	Sabula and Penfield quadrangles , Clearfield, Elk and Jefferson Counties, Pa., by T. M. Berg and A. D. Glover. Scale 1:24,000 (in press)	
A 74cd	Penfield 15' quadrangle , (southern half), by W. E. Edmunds and T. M. Berg. 1971. 184 p., 38 figs., 22 pls. including 1 geologic map. Scale 1:24,000	8.60
A 75	Curwensville quadrangle , by G. H. Ashley. 1940. 2nd printing 1969. 140 p., 32 figs., 4 pls. including 1 topographic, 1 geologic, and 1 mineral resources map	6.00
A 84cd	Clearfield quadrangle , (southern half), by A. D. Glover. 1970. 139 p., 21 figs., 15 pls. including 1 geologic map. Scale 1:24,000	7.40
A 85ab	Houtzdale quadrangle , (northern half), by W. E. Edmunds. 1968. 150 p., 25 figs., 15 pls. including 1 geologic map. Scale 1:24,000	6.60
A 95a	Philipsburg quadrangle , by G. B. Glass. 1972. 241 p., 44 figs., 20 pls. including 1 geologic map. Scale 1:24,000	10.10
A 96	Tyrone quadrangle , by Charles Butts and others. 1939. 116 p., 4 figs., 14 pls. including 1 geologic map and cross sections	*
A 109a	McConnellsburg quadrangle , by K. L. Pierce. 1966. 120 p., 19 figs., 3 pls. including geologic map, 1 cross section sheet and 1 surficial deposits map. Scale 1:24,000	4.15

* Out-of-print.

A 119ab	Northeastern Franklin County , by S. I. Root. 1971. 104 p., 51 figs., 2 pls. including 1 geologic map. Scale 1:24,000	3.85
A 119cd	Chambersburg quadrangle , (southern half), Franklin County and adjoining areas, by S. I. Root. 1968. 118 p., 51 figs., 1 geologic map. Scale 1:24,000	3.30
A 126	Mifflintown quadrangle , by R. R. Conlin and D. M. Hoskins. 1962. 46 p., 3 figs., 2 pls. including 1 geologic map and 1 cross section sheet. Scale 1:24,000	4.75
A 127	Loysville quadrangle , by J. T. Miller. 1961. 47 p., 8 figs., 2 pls. including 1 geologic map and cross section sheet. Scale 1:24,000	8.85
A 129a	Caledonia Park quadrangle and adjoining areas , by J. L. Fauth. 1968. 133 p., 18 figs., 7 pls. including 1 geologic map. Scale 1:24,000	2.85
A 129c	Iron Springs quadrangle , by J. L. Fauth	(in press)
A 136	Millerstown quadrangle , Perry, Juniata and Snyder Counties, Pa., by R. T. Faill and R. B. Wells	(in press)
A 137ab	New Bloomfield quadrangle , (northern half), by J. L. Dyson. 1963. 63 p., 3 figs., geologic map and sections. Scale 1:24,000	2.55
A 137cd	New Bloomfield quadrangle , (southern half), by J. L. Dyson. 1967. 86 p., 4 figs., 1 geologic map. Scale 1:24,000	4.30
A 146	Millersburg quadrangle , by D. M. Hoskins	(in preparation)
A 157d	Palmyra quadrangle , by A. R. Geyer. 1970. 46 p., 17 figs., one geologic map. Scale 1:24,000	2.85
A 167c	Lebanon (7½') quadrangle, by A. R. Geyer and others. 1958. Geologic map, cross sections, and text on reverse. Scale 1:24,000	1.90
A 167d	Richland (7½') quadrangle, by Carlyle Gray and others. 1958. Geologic map, cross sections, and text on reverse. Scale 1:24,000	1.80
A 168	Lancaster quadrangle , by A. I. Jonas and G. W. Stose. 1930. 103 p., 10 figs., 23 pls. including 1 topographic and 1 geologic map. Superseded in part by W26	1.00
A 177c	Womelsdorf quadrangle , by A. R. Geyer and others. 1963. 93 p., 35 figs. and 1 geologic map. Scale 1:24,000	2.85
A 177d	Sinking Spring quadrangle , Berks and Lancaster Counties, Pa., by D. B. MacLachlan and others	(in press)
A 178	New Holland quadrangle , by A. I. Jonas and G. W. Stose. 1926. 2nd printing 1969. 40 p., 7 pls. including 1 topographic and geologic map	3.50
A 194cd	Hickory Run and Blakeslee quadrangles , Carbon and Monroe Counties, Pa., by W. D. Sevon	(in press)
A 195ab	Christmans and Pohopoco Mountain quadrangles , Carbon and Monroe Counties, Pa., by W. D. Sevon	(in press)
A 195cd	Lehigh and Palmerton quadrangles , Carbon, Northampton and Lehigh Counties, Pa., by J. B. Epstein and others. 1974. 460 p., 175 figs., 4 pls.	24.00
A 197	Boyertown quadrangle, Precambrian geology , by T. V. Buckwalter. 1959. Geologic map and text. Scale 1:24,000	3.20
A 204ab	Tobyhanna and Buck Hill Falls quadrangles , Monroe County, Pa., by T. M. Berg and W. D. Sevon	(in press)
A 204cd	Pocono Pines and Mt. Pocono quadrangles , Monroe County, Pa., by T. M. Berg and W. D. Sevon	(in preparation)

A 205a	Brodheadsville quadrangle , by T. M. Berg	(in press)
A 206	Allentown quadrangle , by B. L. Miller. 1926. 195 p., 2 figs., 15 pls. including 1 topographic and 1 geologic map. Superseded by C9, C39, and C48	*
A 214c	East Stroudsburg quadrangle , by M. F. Bucek. 1971. 40 p., 12 figs., map of glacial deposits and bedrock. Scale 1:24,000 . .	2.65
A 223	Milford quadrangle and adjoining areas , by F. W. Fletcher and D. L. Woodrow. 1970. 64 p., 9 figs., 2 pls. including geologic map . .	2.10

COUNTY REPORTS Map scales 1:62,500 (1" = approx. 1 mile). County reports are numbered alphabetically within the Commonwealth.

C 1	Geology and mineral resources of Adams County , by G. W. Stose. 1932. 153 p., 11 figs., 26 pls. including 1 topographic and 1 geologic map	1.00
C 1	Part 2, Mineral resources of Adams County , by G. W. Stose, 1925. 61 p., 1 fig., 11 pls. including 1 mineral deposit map. Scale 1:250,000	*
C 1	Part 3, Soil Survey of Adams County , by A. L. Patrick and H. H. Bennett. 1924. 43 p. and soil map	*
C 9	Geology and mineral resources of Bucks County , by Bradford Willard and others. 1959. 263 p., 39 figs., 23 pls. including 1 topographic and 1 geologic map	7.25
C 26	Geology and mineral resources of Fayette County , by W. O. Hickok and F. T. Moyer. 1940. 530 p., 146 figs., 1 topographic, 1 geologic, and 1 coal and surface structure maps	(in press)
C 30	Geology and mineral resources of Greene County , by R. W. Stone. 1932. 175 p., 56 figs., 3 pls. including 1 topographic and 1 geologic map	1.00
C 39	Lehigh County, geology and geography , by B. L. Miller and others. 1942. 492 p., 17 figs., 39 pls. including 1 topographic and mine map and 1 geologic map	3.30
C 48	Northampton County, geology and geography , by B. L. Miller and others. 1939; 2nd printing, 1965. 496 p., 36 figs., 29 pls. including geologic map	5.10
C 56a	Geology and mineral resources of southern Somerset County , by N. K. Flint. 1965. 267 p., 55 figs., 13 pls. including geologic map and coal reserves maps (hard bound)	6.75
C 67	Geology and mineral resources of York County , by G. W. Stose and A. I. Jonas. 1939. 2nd printing, 1970. 195 p., 14 figs., 38 pls. including geologic map	10.00

EDUCATIONAL SERIES

ES 1	Common rocks and minerals of Pennsylvania , by D. M. Lapham and A. R. Geyer. 1962. 22 p., 25 figs.	free
ES 2	Common fossils of Pennsylvania , by D. M. Hoskins. 1962. 20 p., 6 figs., 3 pls.	free
ES 3	Ground Water in Pennsylvania , by A. E. Becher. 1970	free
ES 4	Pennsylvania geology summarized , by Bradford Willard. 1962. 17 p., 3 figs., 1 pl.	free

* Out-of-print.

ES 5	Geology and the Gettysburg Campaign , by Andrew Brown. 1962. 15 p., 2 figs.	free
ES 6	Pennsylvania and the Ice Age , by V. C. Shepps. 1962. 33 p., 19 figs.	free
ES 7	Coal in Pennsylvania , by W. E. Edmunds and E. F. Koppe, 1968. 28 p., 12 figs.	free
ES 8	Geology of Pennsylvania's Oil and Gas , by W. R. Wagner and W. S. Lytle. 1968. 28 p., 16 figs.	free

ENVIRONMENTAL GEOLOGY REPORTS

EG 1	Engineering characteristics of the rocks of Pennsylvania , by W. G. McGlade and others. 1972.	2.50
EG 2	Environmental geology for land-use planning , by A. R. Geyer and W. G. McGlade. 1972.	1.40
EG 3	Subsurface liquid waste disposal and its feasibility in Pennsylvania , by Neilson Rudd. 1972.	2.00
EG 4	Environmental geology of the Harrisburg area , by W. G. McGlade (in preparation)	
EG 5	Environmental geology of the York area , by M. E. Horne (in preparation)	

GENERAL GEOLOGY REPORTS

G 1	A syllabus of Pennsylvania geology and mineral resources , by G. H. Ashley. 1931. 160 p., 118 figs., 2 pls. including a small colored geologic map	*
G 2	Meteorites found in Pennsylvania , by R. W. Stone. 1932. Revised edition by Eileen Starr. 1967. 35 p., 18 figs.	0.40
G 3	Pennsylvania caves , by R. W. Stone. 1930. 2nd Edition 1932. 143 p., 68 figs.	*
G 4	Devonian faunas in Pennsylvania , by Bradford Willard. 1932. 43 p.	*
G 5	Correlation of the Ordovician limestone at Salona, Clinton County , by Lawrence Whitcomb. 1932. 16 p., 1 pl.	*
G 6	Scenery of Pennsylvania , by G. H. Ashley. 1933. 91 p., 90 figs., 1 pl.	*
G 7	Glacial deposits outside the Wisconsin terminal moraine in Pennsylvania , by Frank Leverett. 1934; 2nd printing, 1958. 140 p., 38 figs., 1 pl.	1.00
G 8	Guidebook: A Paleozoic section in south-central Pennsylvania , by Bradford Willard and A. B. Cleaves. 1938. 38 p., 10 pls.	*
G 9	The geomorphology of the Wyoming-Lackawanna region, Pennsylvania , by H. I. Itter. 1938; 2nd printing, 1959. 82 p., 46 figs., 9 pls.	0.70
G 10	Recent geological history of the Delaware Valley below the Water Gap , by Freeman Ward. 1938; 2nd printing, 1962. 76 p., 13 figs., 10 pls.	0.55
G 11	Guidebook: A Paleozoic section at Delaware Water Gap , by Bradford Willard. 1938. 35 p., 9 figs.	*
G 12	Guidebook: Highway geology from Philadelphia to Pittsburgh , by Bradford Willard. 1939. 42 p., 17 pls.	*
G 13	Guide to the geology from Dauphin to Sunbury , by Bradford Willard. 1939. 24 p., 7 pls.	*

* Out-of-print.

G 14	Guide to the geology of the upper Schuylkill Valley , by Bradford Willard. 1938. 23 p., 8 figs., 1 pl.	*
G 15	Guidebook to the geology near Reading , by Bradford Willard and D. M. Fraser. 1939. 27 p., 11 figs.	*
G 16	Guide to places of geologic interest in the Lehigh Valley , by B. L. Miller. 1939. 47 p., 24 figs.	*
G 17	Guidebook to the geology about Pittsburgh , by Henry Leighton. 1939; 2nd edition, 1947. 35 p., 13 figs.	*
G 19	The Devonian of Pennsylvania , by Bradford Willard and others. 1939. 450 p., 95 figs., 32 pls.	*
G 20	Guidebook to the geology of the Pennsylvania Turnpike , by A. B. Cleaves and G. H. Ashley. 1942. 41 p., 23 figs., 14 pls. (replaced by G 24)	*
G 21	Subsurface Trenton and sub-Trenton rocks in Ohio, New York, Pennsylvania, and West Virginia , by C. R. Fettke. 1948. 35 p., 7 figs. (reprinted from Bull. AAPG, vol. 32, no. 8)	*
G 22	Trenton and sub-Trenton of outcrop areas in New York, Pennsylvania, and Maryland , by F. M. Swartz. 1948. 102 p., 26 figs. (reprinted from Bull. AAPG, vol. 32, no. 8)	0.35
G 23	Pleistocene terraces of the Susquehanna River , by L. C. Peltier. 1949. 152 p., 49 figs.	2.35
G 24	Guidebook to the geology of the Pennsylvania Turnpike from Carlisle to Irwin , by A. B. Cleaves and R. C. Stephenson. 1949. 72 p., 7 figs., 28 pls. including geologic strip maps	0.50
G 25	Subsurface projection of Cambro-Ordovician sediments in the Pennsylvania-New York region , by F. M. Swartz. 1950. 18 p., 15 figs. Superseded by G49	*
G 26	The Pennsylvanian Mill Creek limestone in Pennsylvania , by M. M. Chow. 1951. 36 p., 3 figs., 4 pls.	0.75
G 27	Structure contour maps of the plateau region of north-central and western Pennsylvania , by C. R. Fettke. 1954. 45 p., 3 pls. including surface and subsurface structure maps. Scales 1:250,000 and 500,000. Superseded by maps 9 and 14	*
G 28	Upper Cambrian fossils of Bucks County, Pennsylvania , by B. F. Howell. 1957. 39 p., 1 fig., 5 pls.	0.75
G 29	Guide to the highway geology from Harrisburg to Bald Eagle Mountain , by Bradford Willard and others. 1958. 38 p., 2 figs., 8 pls.	*
G 30	The geology of Hidden Valley Boy Scout Camp area , by J. T. Miller. 1957. Revised 1971 by R. B. Wells, 45 p., 11 figs., 2 pls.	0.50
G 31	The Annville, Myerstown, and Hershey Formations of Pennsylvania , by C. E. Prouty. 1959. 47 p., 19 figs., 1 pl., 9 measured sections	0.30
G 32	Glacial geology of northwestern Pennsylvania , by V. C. Shepps and others. 1959. 59 p., 11 figs., 1 geologic map. Scale 1:125,000 (1" = approx. 2 miles)	1.30
G 33	Mineral collecting in Pennsylvania , by D. M. Lapham and A. R. Geyer. 3rd edition, 1969. 164 p.	0.50

G 34	Bibliography of Pennsylvania Geology to 1949 , by H. R. Cramer. 1961. 453 p., 1 fig.	5.75
G 35	Guide to the geology of Cornwall, Pennsylvania , by Carlyle Gray and D. M. Lapham. 1961. 18 p., 5 figs., 2 pls.	0.30
G 36	Stratigraphy and Paleontology of the Bloomsburg Formation of Pennsylvania and adjacent states , by D. M. Hoskins. 1961. 125 p., 6 figs., 8 pls.	2.75
G 37	Stratigraphy of the Beekmantown Group in southeastern Pennsylvania , by J. P. Hobson, Jr. 1963. 331 p., 27 figs., 22 pls., 15 tables	3.35
G 38	Lithostratigraphy of the Middle Ordovician Salona and Coburn Formations in central Pennsylvania , by R. R. Thompson. 1963. 154 p., 15 figs., 12 pls., 7 tables	1.55
G 39	Symposium on Middle and Upper Devonian stratigraphy of Pennsylvania and adjacent states , V. C. Shepps, editor. 1963. Collected papers by 25 authors. 301 p., 82 figs.	2.05
G 40	Fossil collecting in Pennsylvania , by D. M. Hoskins, 1964. 2nd printing, revised 1969. 126 p., 109 figs., 11 pls.	0.50
G 41	Guidebook to the geology of the Philadelphia area , by B. K. Goodwin. 1964. 189 p., 126 figs.	0.70
G 42	Bibliography of Pennsylvania geology, 1950-1959 , by H. R. Cramer. 1965. 237 p. (hard bound)	2.30
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M 66	Pennsylvania bituminous coal analyses and rock descriptions; 1966-68 , by R. D. Sponseller. 1973. 15 figs.	6.30
M 67	Greater Pittsburgh region construction aggregates , by B. J. O'Neill, Jr. 1974. 60 p., 2 figs., 1 pl.	5.00
M 68	Bituminous coal resources in southwestern Pennsylvania , compiled by M. A. Sholes and V. W. Skema. 1974. 13 pls.	5.30

MISCELLANEOUS PAPERS

1	The Story of the Survey , by G. H. Ashley. 1920. 20 p.	*
2	The Work of the Survey, 1919-1922 , by G. H. Ashley. 1923. 18 p.	*
3	The Pennsylvania Geological Survey, Administrative Report , by G. H. Ashley. 1931. 38 p.	*
4	The resources of Pennsylvania in a nutshell , by G. H. Ashley. 1931. 15 p.	*
5	Fifteen years, Sept. 1, 1919, to Sept. 1, 1934 , by G. H. Ashley. 1934. 8 p.	*
6	A quarter century of progress , by G. H. Ashley. 1944. 10 p.	*

OPEN FILE REPORTS (Available for cost of copying, see p. 4 for ordering instructions)

A list of open file reports of the Pennsylvania Geological Survey may be obtained by writing to the Survey.

PARK GUIDES

PG 1	Ice mine and balanced rock; Trough Creek State Park , by J. P. Wilshusen. 1969	free
PG 2	Hickory Run boulder field; Hickory Run State Park , by A. R. Geyer. 1969	free
PG 3	Archbald pothole; Archbald Pothole State Park , by W. G. McGlade. 1969	free

PG 4	Moraine State Park , by W. S. Lytle. 1970.	free
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PG 8	Valley Forge State Park , by P. L. Samson. 1974	free

PROGRESS REPORTS

PR 1-105	Mimeographed series of reports, all out of print, many superseded. See G 1 for partial list	*
PR 106	Gas and oil in Potter County, Pa. , by S. H. Cathcart. 1934. 31 p., 3 figs.	*
PR 107	Gas in Tioga County, Pennsylvania , by S. H. Cathcart and T. H. Myers. 1934. 42 p., 5 figs.	*
PR 108	Geologic structure in the plateaus region of northern Pennsylvania and its relation to the occurrence of gas in the Oriskany sand , by S. H. Cathcart. 1934. 24 p., 2 figs. (replaced by PR 138)	*
PR 109	Possibility of finding gas in Cameron County, Pennsylvania , by S. H. Cathcart. 1934. 16 p., 3 figs.	*
PR 110	Possible occurrence of gas in the Oriskany sand of Elk County, Pennsylvania , by S. H. Cathcart. 1934. 21 p., 3 figs.	*
PR 111	Possibility of finding gas in the Oriskany sand of McKean County, Pennsylvania , by S. H. Cathcart. 1934. 13 p., 3 figs.	*
PR 112	White clays of Pennsylvania , by Henry Leighton. 1934. 19 p., 12 figs. (See M 17 and M 23)	*
PR 113	Pennsylvania geology summarized , by Bradford Willard. 1935. 4th Edition (reprinted as ES 4)	*
PR 114	Subsurface stratigraphy of northwestern Pennsylvania and a resume of gas and oil possibilities of deeper sands , by C. R. Fettke. 1935. 23 p., 4 figs.	*
PR 115	Structure and stratigraphy of Fayette County (prelim. rept.), by F. T. Moyer. 1937. 20 p., 1 map. (See C 26)	*
PR 116	Bradford oil field (prelim. rept.), by C. R. Fettke. 1937. 17 p., 5 figs. (See M 21)	*
PR 117	Supplementary record of "deep sand" wells in Pennsylvania , by S. H. Cathcart. 1937. 27 p., 5 figs.	*
PR 118	Geology of the oil and gas fields in the Tidioute quadrangle (prelim. rept.), by S. H. Cathcart and others. 1938. 15 p., 7 maps, 1 fig., 181 well records	*
PR 119	The Canadian System , by G. H. Ashley. 1938. 7 p.	*
PR 120	Structure and stratigraphy of the Brookville quadrangle (prelim. rept.), by C. K. Graeber. 1939. 9 p., 4 figs., including geologic structure map. (Replaced by A 54)	*
PR 121	Structure and stratigraphy of the Smicksburg quadrangle (prelim. rept.), by M. N. Shaffner. 1939. 12 p., geologic structure map, columnar section, and 25 plotted well records. (Replaced by A 55)	*
PR 122	Geology of the oil and gas fields of the Hilliards quadrangle , by R. E. Sherrill and L. S. Matteson. 1939. 25 p., 4 maps, and 238 well records	0.15
PR 123	Oil mining possibilities in Pennsylvania , by P. A. Dickey. 1939. 31 p., 10 figs.	*

* Out-of-print.

PR 124	Summit gas pool, Fayette County, Pennsylvania , by C. R. Fettke, 1940. 31 p., 1 fig.	*
PR 125	Music Mountain oil pool and other oil pools in Lafayette Township, McKean County, Pennsylvania , by C. R. Fettke. 1941, 34 p., 9 figs.	*
PR 126	The Upper Devonian and lower Mississippian of southwestern Pennsylvania , by W. M. Laird. 1941. 23 p.	*
PR 127	Subsurface sections across western Pennsylvania , by C. R. Fettke. 1941. 57 p., 1 map	0.50
PR 128	Manganese minerals in Pennsylvania , by R. M. Foose. 1942. 22 p., 3 figs. (see M 27)	*
PR 129	Electrical well logging in the eastern states , by P. A. Dickey. 1942. 30 p., 20 figs.	*
PR 130	Anthracite reserves , by G. H. Ashley. 1945. 13 p.	*
PR 131	Haskell Sand core from the Coryville pool, McKean County, Pennsylvania , by C. R. Fettke and W. H. Seifert. 1946. 9 p., 1 fig. (a limited edition for the oil industry)	*
PR 132	Topographic maps , by R. C. Stephenson. 1949. 20 p., 9 figs. ..	*
PR 133	Gas in Leidy Township, Clinton County, Pennsylvania , by S. H. Cathcart. 1950. 15 p., 3 figs.	*
PR 134	Preliminary report, Leidy gas field and adjacent areas, Clinton County, Pennsylvania , by J. R. Ebright and A. I. Ingham. 1951. (replaced by M 34)	*
PR 135	Oil and gas developments in Pennsylvania in 1950 , by C. R. Fettke. 1951. 10 p., 1 pl.	*
PR 136	Preliminary report on certain limestone and dolomites of Berks County, Pennsylvania , by Carlyle Gray. 1951. 85 p., 7 figs., 1 pl.	0.50
PR 137	Preliminary report, geology and mineral resources of the New Florence quadrangle , by M. N. Shaffner. 1951. (replaced by A 57)	*
PR 138	Geologic structures of the northern plateau region of Pennsylvania , by A. I. Ingham. 1951. (revision of PR 108, pl. 2)	*
PR 139	Oil and gas developments in Pennsylvania in 1951 , by C. R. Fettke. 1952. 20 p., 4 figs., 2 pls.	*
PR 140	The high calcium limestones of the Annville belt in Berks and Lebanon Counties, Pennsylvania , by Carlyle Gray. 1952. 19 p., 6 figs., 2 pls.	0.50
PR 141	Preliminary report, geology and mineral resources of the Donegal quadrangle , by M. N. Shaffner. 1952. (replaced by A 48)	*
PR 142	Geologic structure of parts of the Chestnut Ridge and Driftwood anticlines in Clearfield and Elk Counties, Pennsylvania , by R. C. Bolger. 1953. Map with text on back	0.30
PR 143	Oil and gas developments in Pennsylvania in 1952 , by C. R. Fettke. 1953. 29 p., 4 figs., 3 pls.	0.25
PR 144	Oil and gas developments in Pennsylvania in 1953 , by C. R. Fettke. 1954. 15 p., 2 pls.	0.20
PR 145	Occurrence of rock salt in Pennsylvania , by C. R. Fettke. 1955. Map with text on back	0.25
PR 146	Ground-water resources of the Lansdale area , by D. R. Rima. 1955. 25 p., 4 figs., 7 pls.	0.40

PR 147	Oil and gas developments in Pennsylvania in 1954 , by C. R. Fettke and W. S. Lytle. 1955. 12 p., 1 fig.	*
PR 148	Summary secondary recovery operations in Pennsylvania to January 1, 1954, including petroleum reserves and production by counties , by W. S. Lytle. 1955. 23 p., 7 figs.	0.15
PR 149	Geology and mineral resources of southern Somerset County , by N. K. Flint. 1956. (replaced by C 56a)	*
PR 150	Oil and gas developments in Pennsylvania in 1955 , by C. R. Fettke and W. S. Lytle. 1956. 23 p., 3 figs., 2 pls.	*
PR 151	Oil and gas developments in Pennsylvania in 1956 , by W. S. Lytle. 1957. 33 p., 5 figs., 3 pls.	*
PR 152	Preliminary report on the sedimentary uranium occurrences in the State of Pennsylvania , by J. F. McCauley. 1957. (replaced by M 43)	*
PR 153	Preliminary report on the chromite occurrence at the Wood Mine, Lancaster County, Pennsylvania , by D. M. Lapham. 1958. 11 p., 2 pls.	free
PR 154	Oil and gas developments in Pennsylvania in 1957 , by W. S. Lytle and others. 1958. 34 p., 4 figs., 5 pls.	*
PR 155	Oil and gas developments in Pennsylvania in 1958 , by W. S. Lytle and others. 1959. 44 p., 4 figs.	*
PR 156	Subsurface Cambro-Ordovician stratigraphy of northwestern Pennsylvania and bordering regions , by W. R. Wagner. 1961. 20 p., 1 fig., 1 pl. (replaced by G 49)	*
PR 157	Oil and gas developments in Pennsylvania in 1959 , by W. S. Lytle and others. 1960. 55 p., 5 figs., 6 pls.	*
PR 158	Oil and gas developments in Pennsylvania in 1960 , by W. S. Lytle and others. 1961. 50 p., 5 figs., 7 pls.	*
PR 159	Some geological factors affecting the Upper Freeport coal and its quality , by E. F. Koppe. 1961. 5 p.	*
PR 160	Oil and gas developments in Pennsylvania in 1961 , by W. S. Lytle and others. 1962. 55 p., 3 figs., 9 pls.	*
PR 161	The Precambrian geology of the Reading 15' quadrangle , by T. V. Buckwalter. 1963. 49 p., 2 pls. including 2-color geologic map. Scale 1:24,000	1.75
PR 162	Oil and gas developments in the Youngsville-Sugar Grove Field of Warren County, Pennsylvania , by W. H. Seifert and W. S. Lytle. 1963. 13 p., 3 figs., 4 tables (replaced by M 53)	*
PR 163	Preliminary report of the oil and gas resources of the Warren 7½' quadrangle, Pennsylvania , by W. S. Lytle and L. A. Heeren. 1963. One sheet containing map, text, and tables (replaced by M 52) ..	*
PR 164	Bedrock geology of the Cedar Run quadrangle, Tioga and Lycoming Counties, Pennsylvania , by G. W. Colton. 1963. One sheet containing text, columnar section and geologic map. Scale 1:24,000	1.05
PR 165	Oil and gas developments in Pennsylvania in 1962 , by W. S. Lytle and others. 1963. 44 p., 6 figs., 9 tables	0.30
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PR 167	Bedrock geology of the Slate Run quadrangle, Clinton, Lycoming, and Potter Counties, Pennsylvania , by G. W. Colton and S. J. Luft. 1965. One sheet containing text, columnar section and geologic map. Scale 1:24,000	1.10

PR 168	Oil and gas developments in Pennsylvania in 1964 , by W. S. Lytle and others. 1965. 55 p., 10 figs., 13 tables	0.50
PR 169	Geology of a portion of the Mount Holly Springs quadrangle, Adams and Cumberland Counties, Pennsylvania , by J. L. Freedman. 1967. 66 p., 25 figs., 3 pls. including 1 geologic map. Scale 1:24,000	2.50
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PR 171	Hydrology of the carbonate rocks of the Lancaster 15-minute quadrangle, Pennsylvania , by Harold Meisler and A. E. Becher. 1966. 36 p., 7 figs., 1 pl. (replaced by W26)	1.15
PR 172	Oil and gas developments in Pennsylvania in 1965 , by W. S. Lytle and others. 1966. 66 p., 19 figs.	0.40
PR 173	Oil and gas developments in Pennsylvania in 1966 , by W. S. Lytle and others. 1967. 51 p., 11 figs.	0.60
PR 174	Bedrock geology of the Waterville quadrangle, Lycoming County , by G. W. Colton. 1967. One sheet containing text, columnar sections and geologic map. Scale 1:24,000	1.20
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PR 182	Isopach and lithofacies maps of the Devonian in the Appalachian Basin , by W. A. Oliver, Jr. and others. 1971. 7 sheets	2.85
PR 183	Oil and gas developments in Pennsylvania in 1970 , by W. S. Lytle and others. 1971. 50 p., 16 figs.	0.95
PR 184	Oil and gas developments in Pennsylvania in 1971 , by W. S. Lytle and others. 1972. 39 p., 9 figs.	0.80
PR 185	Middle Devonian to Ordovician (Queenston) subsurface stratigraphy , by Louis Heyman	(in press)
PR 186	Oil and gas developments in Pennsylvania in 1972 , by W. S. Lytle. 1973. 36 p., 9 figs.	2.20
PR 187	Oil and gas developments in Pennsylvania in 1973 , by W. S. Lytle. 1974. 44 p., 14 figs.	1.40
PR 188	Oil and gas developments in Pennsylvania in 1974 , by W. S. Lytle	(in preparation)

SPECIAL BULLETINS (13½ x 18 inches) Map scales 1:24,000 (1" = 2000') unless indicated

SB 1	Oil-bearing sands in southwestern Pennsylvania , by L. S. Matteson and D. A. Busch. 1944. 11 p. plus 208 well records, 55 pls. . .	1.50
SB 2	Oil and gas field farm line maps of the Franklin and Oil City quadrangles, Pennsylvania , by P. A. Dickey and L. S. Matteson. 1945. 2nd printing 1957. 18 maps	0.65
SB 3	Oil and gas field property line maps of the Hilliards quadrangle, Pennsylvania , by R. E. Sherrill. 1946. 2nd printing 1965. 9 maps	0.60
SB 4	Oil and gas field property line maps of the Titusville quadrangle, Pennsylvania , by P. A. Dickey and L. A. Heeren. 1946. 2nd printing 1965. 9 maps	0.60
SB 5	Oil and gas field atlas of the Bradford quadrangle , by C. R. Fettke and Virginia Fairall. 1951. 10 maps, 2 tables	1.25
SB 6	Oil and gas field atlas of the Smethport quadrangle , by C. R. Fettke and Virginia Fairall. 1951. 10 maps, 2 tables	1.25
SB 7	Oil and gas field atlas of the Butler quadrangle , by W. S. Lytle and L. A. Heeren. 1955. 10 maps, 2 tables	1.25
SB 8	Preliminary report on a regional stratigraphic study of Devonian rocks of Pennsylvania , by T. H. Jones and A. S. Cate. 1957. 5 p., 7 pls. Scale 1:1,000,000 (1" = approx. 16 miles)	1.75
SB 9	Oil and gas field atlas of the Foxburg quadrangle , by J. M. L. Bergsten and L. A. Heeren. 1961. 26 p., 9 colored maps, 4 pls. . .	3.00
SB 10	Stratigraphic studies of the Silurian rocks of Pennsylvania, Part 1, Stratigraphic cross sections of Lower Devonian and Silurian rocks in western Pennsylvania and adjacent areas , by A. S. Cate. 1961. 3 p., 1 fig., 5 colored pls.	1.75
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WATER-RESOURCE REPORTS

W 1	Ground water in southwestern Pennsylvania , by A. M. Piper. 1933. 410 p., 40 figs.	1.50
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W 7	Ground-water resources of Pennsylvania , by S. W. Lohman. 1941. 32 p., 11 figs., 1 pl.	0.25
W 8	Ground-water resources of the valley-fill deposits of Allegheny County, Pennsylvania , by J. H. Adamson and others. 1949. 181 p., 9 figs., 5 pls.	1.85
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W 10	Ground water for air conditioning at Pittsburgh, Pennsylvania , by D. W. VanTuyl. 1951. 34 p., 9 figs.	0.50
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W 12	Borehole geophysical methods for analyzing the specific capacity of aquifers in a multiaquifer well , by G. D. Bennett and E. P. Patten, Jr. 1960. 27 p., 8 figs.	0.15
W 13	Ground-water resources of the Coastal Plain area of southeastern Pennsylvania , by D. W. Greenman and others. 1961. 375 p., 27 figs., 22 pls.	9.10
W 14	Geology and hydrology of the Stockton Formation in southeastern Pennsylvania , by D. R. Rima and others. 1962. 11 p., 8 tables, 4 pls. including geologic map. Scale 1:24,000	4.45
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W 17	Methods of flow measurement in well bores , by E. P. Patten, Jr. and G. D. Bennett. 1963. 28 p., 13 figs., 1 table. Available as U. S. G. S. Water-Supply paper 1544c	free
W 18	Hydrogeology of the carbonate rocks of the Lebanon Valley, Pennsylvania , by Harold Meisler. 1963. 81 p., 18 figs., 3 tables, 3 pls. including hydrogeologic map. Scale 1:24,000	3.55
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W 25	Hydrology of the metamorphic and igneous rocks of central Chester County , by C. W. Poth. 1968. 84 p., 29 figs., 3 pls. including 2 geologic maps. Scale 1:24,000	4.50
W 26	Hydrology of the carbonate rocks of the Lancaster 15' quadrangle, south-central Pennsylvania , by Harold Meisler and A. E. Becher. 1971. 149 p., 25 figs., 2 pls.	5.90
W 27	Ground water resources of the Loysville and Mifflintown quadrangles, south-central Pennsylvania , by H. E. Johnston. 1970. 96 p., 12 figs., 2 pls.	3.35

W 28	Hydrology of the Pleistocene sediments in the Wyoming Valley, Luzerne County , by J. R. Hollowell. 1971. 77 p., 16 figs., 4 pls. including a geologic map	5.40
W 29	Ground water resources in Montgomery County , by T. G. Newport. 1971. 83 p., 14 figs., 2 pls.	2.10
W 30	Hydrology of the Martinsburg Formation in Lehigh and Northampton Counties , by C. W. Poth. 1972. 52 p., 5 figs., 1 pl.	2.60
W 31	Water resources of Lehigh County , by C. R. Wood and others. 1972. 263 p., 47 figs., 5 pl.	9.15
W 32	Summary of ground water resources of Clarion County , by T. G. Newport. 1973. 42 p., 6 figs., 1 pl.	2.15
W 33	Geology and hydrology of the Shenango and Stoneboro 15 minute quadrangles, Mercer and Crawford Counties , by G. R. Shiner and G. E. Kimmel (in press)	
W 34	Summary of ground water resources of Armstrong County , by C. W. Poth. 1973. 38 p., 6 figs., 1 pl.	1.90
W 35	Summary of ground water resources of Allegheny County , by J. T. Gallaher. 1973. 71 p., 12 figs., 1 pl.	1.90
W 36	Summary of ground water resources of Butler County , by C. W. Poth. 1973. 49 p., 4 figs., 1 pl.	1.90
W 37	Summary of ground water resources of Westmoreland County , by T. G. Newport. 1973. 49 p., 9 figs., 1 pl.	1.90
W 38	Summary of ground water resources of Washington County , by T. G. Newport. 1973. 32 p., 5 figs., 1 pl.	1.90
W 39	Summary of ground water resources of Beaver County , by C. W. Poth. 1973. 39 p., 4 figs., 1 pl.	1.90
W 40	Summary of ground water resources of Luzerne County , by T. G. Newport (in preparation)	
W 41	Geology and ground water resources of Lackawanna County , by J. R. Hollowell and H. E. Koester (in preparation)	

WELL-SAMPLE RECORDS

#1-38	Superseded by Bulletin M 40.	
#39	Goodwill-Curley No. 1 well, Pymatuning Township, Erie County , by W. R. Wagner. 1958. 48 p.	free
#40	Emma McKnight No. 1 well, Pymatuning Township, Mercer County , by W. R. Wagner. 1953. 33 p.	free
#41	Albert No. 1 well, Adams Township, Snyder County , by W. R. Wagner. 1958. 23 p.	free
#42-55	Superseded by Bulletin M 40.	
#56	Jesse B. Miller No. 1 well, Napier Township, Bedford County , by C. R. Fettke. 1960. 38 p.	0.15

SELECTED PUBLICATIONS

Pennsylvania's mineral heritage. Bureau of Statistics, Bureau of Topographic and Geologic Survey, and the Pennsylvania State University, School of Mineral Industries. 1944. 148 p., 29 figs.	0.50
Historical Statistics of Pennsylvania's mineral industries, 1759-1955. Bulletin of the Mineral Industries Experiment Station, No. 69, 1957. 93 p.	0.70
Pennsylvania Geology. A bimonthly publication issued by the Bureau of Topographic and Geologic Survey. Generally 16 p., illustrated in two colors. Series begins with Vol. 1, No. 1, August, 1969	free

**PENNSYLVANIA TOPOGRAPHIC AND GEOLOGIC
SURVEY COMMISSION
(Third Survey)**

SELECTED PUBLICATIONS (Economic reports)

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| 1 | Geology of the oil and gas fields of the Sewickley quadrangle , by M. J. Munn. 1910. 170 p., 10 pls. | * |
| 2 | Geologic map of southwestern Pennsylvania . 1914. 29 p., 10 pls. | * |
| 3 | Geology of the oil and gas fields of the Clarion quadrangle , by M. J. Munn. 1910. 112 p., 1 fig., 9 pls. | * |
| 4 | Mineral pigments of Pennsylvania , by B. L. Miller. 1911. 102 p., 9 figs., 29 pls. | * |
| 5 | Talc and serpentines of eastern Pennsylvania and cement industries of Lehigh and Northampton Counties , by F. B. Peck. 1911. 66 p., 9 figs., 17 pls. | * |
| 6 | Graphite deposits of Pennsylvania , by B. L. Miller. 1912. 148 p., 17 pls., 1 map | * |
| 7 | Engineering data , by R. R. Hice. 1913. 450 p., 3 pls. | * |
| 8 | Mineral production of Pennsylvania , by R. R. Hice. 1911. 84 p. | * |
| 9 | Minerals of Pennsylvania , by A. P. Brown and Frederick Ehrenfeld. 1913. 160 p., 1 fig., 10 pls. | * |
| 10 | Broad-Top coal field , by J. H. Gardner. 1913. 82 p., 1 fig., 32 pls. | * |
| 11 | Mineral production of Pennsylvania , by R. R. Hice. 1913. 107 p. | * |
| 12 | Glass manufacture and the glass sand industry , by C. R. Fettke. 1919. 278 p., 108 pls. | * |

* Out-of-print.

KEY TO U.S. GEOLOGIC SURVEY AREAL REPORTS

- F - FOLIO
- B - BULLETIN
- P - PROFESSIONAL PAPER
- I - MISC. GEOL. INVESTIGATIONS
- M - MISC. FIELD STUDY
- GQ - GEOL. QUADRANGLE MAP
- C - COAL INVESTIGATIONS
- CI - CIRCULAR
- * - OUT OF PRINT



SELECTED PUBLICATIONS

UNITED STATES GEOLOGICAL SURVEY

This is a list of the more important reports dealing with Pennsylvania which have been published by the U. S. Geological Survey. For additional information see **List of Publications** available from the U. S. Geological Survey, Washington, D. C. 20242.

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| 225G | The Elders Ridge coal field, Pa.: Contributions to economic geology , by R. W. Stone. 1904. p. 311-324 | * |
| 225G | Coal mining along the southeastern margin of the Wilmore Basin, Cambria County, Pa.: Contributions to economic geology , by Charles Butts. 1904. p. 325-329 | * |
| 225H | Hyner gas pool, Clinton County, Pa.: Contributions to economic geology , by M. L. Fuller. 1904. p. 392-395 | * |
| 225H | Oil and gas fields of eastern Greene County, Pa.: Contributions to economic geology , by R. W. Stone. 1904. p. 396-412 | * |
| 225K | Clays of the Ohio Valley in Pennsylvania: Contributions to economic geology , by L. H. Woolsey. 1904. p. 463-480 | * |
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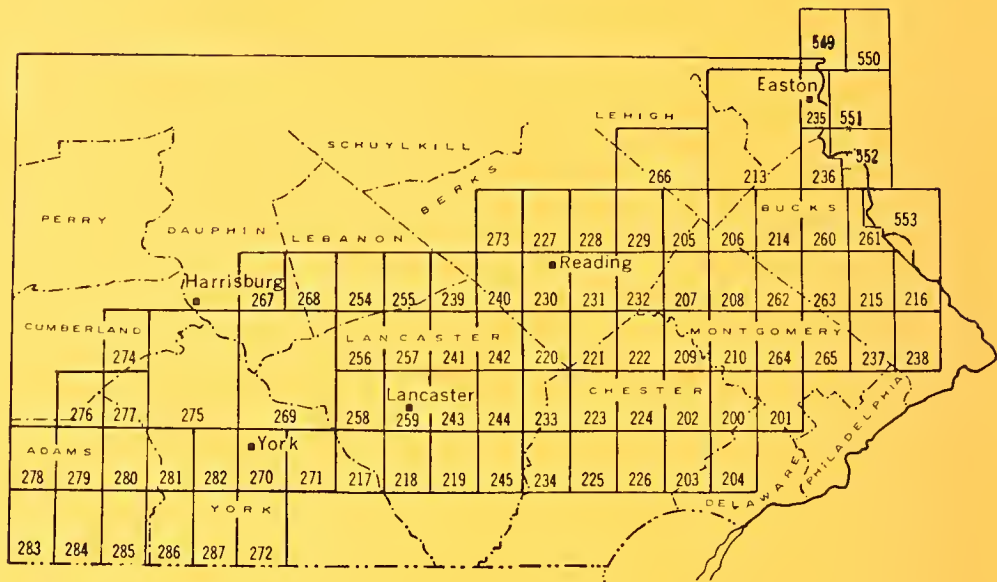
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Much additional information on Pennsylvania Geology is available in publications not covered by this list. The reader is referred to Pa. Geological Survey Bulletins G-34, G-42 and G-61 for a complete list of all articles on Pennsylvania Geology written before 1969.

Abbreviations used in this Key are as follows:

Pennsylvania 3rd (Commission) Survey—Pa. Geol. Survey (3rd)
 Pennsylvania Geological Survey, 4th series—Pa. Geol. Survey (4th)

A ——— Atlas Series
 C ——— County Reports
 IC ——— Information Circulars
 ES ——— Educational Series
 EG ——— Environmental Geology Reports
 G ——— General Geology Reports
 M ——— Mineral Resource Reports
 Map ——— Map Series
 PG ——— Park Guides
 PR ——— Progress Reports
 SB ——— Special Bulletins
 W ——— Water Resource Reports
 WSR ——— Well-Sample Records

United States Geological Survey—U. S. Geol. Survey

B ——— Bulletins
 Cir ——— Circulars
 CI ——— Coal Investigations
 F ——— Folios
 GP ——— Geophysical Investigations
 GQ ——— Geologic Quadrangle Maps
 HA ——— Hydrologic Investigations Atlas
 I ——— Miscellaneous Geologic Investigations
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Pa. Geol. Survey (4th): G3, 7, 19; IC4; M11, 15, 20, 23, 50; W4

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Pa. Geol. Survey (3rd): 4, 5, 6, 8, 11

Pa. Geol. Survey (4th): A195CD, 206; C48; G7, 10, 11, 16, 31, 33, 37, 45, 57; IC4, 28, 29; M9, 15, 16, 20, 23, 27, 63, 64; W2, 30

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Pa. Geol. Survey (4th): A146; G3, 4, 7, 13, 19, 39; IC4, M5, 8, 11, 15, 20, 23, 39, 43, 45, 50, 51, 64; PR130, 147, 150; W4

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Pa. Geol. Survey (4th): G41; IC4; M15, 20, 23, 27, W2, 13

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Pa. Geol. Survey (4th): A223; G4, 19, 39, 60; IC65; M15, 20, 23, 45, 51; PR155; W4

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Pa. Geol. Survey (4th): A136, 146; G3, 19; IC4; M15, 18, 20, 23, 50; PR151, 154; W5, 27; WSR41

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Pa. Geol. Survey (4th): G19, 39; IC4, 65, 66; M15, 18, 20, 23, 27, 51; PR130, 154, 157; W4

U. S. Geol. Survey: B1317A; GP669

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Pa. Geol. Survey (4th): G19, 39; IC4; M15, 20, 23, 45, 51; PR130, 151, 155, 157; W4

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Pa. Geol. Survey (4th): A36, 37, 48, 57; G3, 39; IC4; Map 21, 22, 24, 25, 33; M2, 4, 6, 10, 11, 15, 17, 19, 20, 31, 39, 45, 48, 50, 51; OF1, 6; PR135, 139, 144, 147, 150, 151, 154, 155, 157; W37

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- Pa. Geol. Survey (3rd): 9
- Pa. Geol. Survey (4th): A96; C9; G1; IC17; M18
- U. S. Geol. Survey: B624, 855; F170

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- Pa. Geol. Survey (3rd): 9
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- Pa. Geol. Survey (4th): A206; C48; G1; IC2
- U. S. Geol. Survey: B447, 624, 855; F82, 170, 174

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- Pa. Geol. Survey (3rd): 9
- Pa. Geol. Survey (4th): G1; IC14; PR153
- U. S. Geol. Survey: B624, 725, 799, 1082K; F211
- U. S. Bur. Mines: R4383

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- Pa. Geol. Survey (3rd): 8, 9, 11
- Pa. Geol. Survey (4th): A5, 27, 36, 37, 54, 55, 57, 65, 67, 74AB, 74CD, 75, 84CD, 85AB; 95A, 96, 109A, 119AB, 119CD, 127, 136, 137AB, 137CD, 146, 168, 177C, 177D, 195CD, 206; C1, 9, 26, 30, 39, 56A, 67; G1, 43, 54, 56, 56A, 57, 62; IC2, 67; Map 12; M10, 17, 23, 50, 51, 55, 57, 63; PR112, 169
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- Pa. Geol. Survey (3rd) : 8, 9, 11
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- Pa. Geol. Survey (4th) : G1; M13, 18
- U. S. Geol. Survey: B624, 1082K; F225

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- Pa. Geol. Survey (3rd) : 9
- U. S. Geol. Survey: B624, 855

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- Pa. Geol. Survey (3rd) : 9
- Pa. Geol. Survey (4th) : G1, 35
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- Pa. Geol. Survey (3rd) : 6, 8, 9, 11
- Pa. Geol. Survey, (4th) : A206; C9, 39; G1
- U. S. Geol. Survey: B624, 891, 1082E; F167
- U. S. Bur. Mines: R4530

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- U. S. Bur. Mines: R4145, 5165

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- Pa. Geol. Survey (3rd): 9
- Pa. Geol. Survey (4th): A96, 168; C9, 26, 39; G1; M5
- U. S. Geol. Survey: B855, 891, 920, 1314C; F162
- U. S. Bur. Mines: R4180, 4247, 4422, 4451, 4703, 4743

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- Pa. Geol. Survey (3rd): 8, 9, 11
- Pa. Geol. Survey (4th): A5, 27, 36, 37, 48, 54, 55, 57, 65, 74CD, 75, 84CD, 85AB, 95A, 96, 109A, 119AB, 119CD, 126, 127, 129A, 136, 137AB, 137CD, 146, 157D, 167C, 167D, 168, 177C, 177D, 178, 206; C1, 9, 26, 30, 39, 48, 56A, 67; G1, 22, 24, 26, 29, 31, 35, 37, 38, 44, 45, 47, 52, 53, 56, 56A, 58; IC2, 60; M15, 20, 50; PR136, 140, 169, 170, 171, 179, 180; W1, 2, 5, 7, 11, 15, 16, 18, 24, 25, 26
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- U. S. Geol. Survey: B1182K

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- Pa. Geol. Survey (3rd): 9
- Pa. Geol. Survey (4th): C1, 39, 48; G1, M26, 27, PR128
- U. S. Geol. Survey: B624; F170, 225; GQ28
- U. S. Bur. Mines: R4312, 4326, 4436

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- Pa. Geol. Survey (3rd): 9, 11
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- Pa. Geol. Survey (3rd): 4, 8, 9, 11
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- Pa. Geol. Survey (3rd): 9
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- Pa. Geol. Survey (3rd): 8, 9
- Pa. Geol. Survey (4th): G1
- U. S. Geol. Survey: B624, 799

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Pa. Geol. Survey (3rd): 1, 3, 8, 9, 11

Pa. Geol. Survey (4th): A27, 48, 65, 74CD, 75, 84CD, 85AB, 95A; C26, 56A; ES8; Maps 3, 4, 5, 6, 10, 16, 17, 18, 19, 21, 22, 23, 24, 25, 26, 28, 29, 30, 31, 32, 33, 34; M1, 21, 22, 24, 25, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 45, 46, 52, 53, 54, 57, 59, 62, 65; PR122, 123, 124, 125, 127, 129, 138, 139, 142, 143, 144, 147, 148, 150, 151, 154, 155, 157, 160, 163, 165, 166, 168, 172, 173, 175, 177, 181, 183, 186; WRS38; 40, 41, 56

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U. S. Geol. Survey: B624, 1317A; PP700D

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Pa. Geol. Survey (3rd): 9

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Pa. Geol. Survey (3rd): 9, 11

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Pa. Geol. Survey (4th): IC2

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Pa. Geol. Survey: C1, 67; IC2

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U. S. Geol. Survey: B624, 1082K

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Pa. Geol. Survey (3rd): 8, 11

Pa. Geol. Survey (4th): G1; M18, 47, 58; PR145

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Pa. Geol. Survey (3rd): 8, 11, 12

Pa. Geol. Survey (4th): A27, 36, 54, 55, 84CD, 109A, 119CD, 168, 177C, 178, 195CD, 206, 214C; C9, 26, 30, 39; G1, 10, 32, 55, 57, 60, 61, 63; IC2; M3, 11, 64

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Pa. Geol. Survey (3rd) : 9

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U. S. Geol. Survey: B624, 920, 1082K

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Pa. Geol. Survey (3rd) : 9

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Pa. Geol. Survey (3rd) : 8, 9, 11

Pa. Geol. Survey (4th) : A195CD, 206; C1, 39, 48; G1; IC2; M9

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Topographic maps may be purchased from the U. S. Geological Survey at the address listed in the right-hand column above. On map orders, customers should state the name of the map as well as the type of map desired (for example, "Pottstown, PA, 7½-minute") and are urged to use order blanks available with the Index to Topographic Mapping in Pennsylvania mentioned above. Orders must be accompanied by check or money order payable to U. S. Geological Survey. Do not send cash or postage stamps.

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<p>IMPORTANT! READ INSTRUCTIONS BELOW BEFORE ORDERING</p>
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PENNSYLVANIA GEOLOGICAL SURVEY

Publications of the Pennsylvania Geological Survey are obtained from two places: If the publication is **free** or an **open-file report**, write to:

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P. O. Box 2357
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THE GEOLOGICAL SURVEYS OF PENNSYLVANIA

There have been four geological surveys of Pennsylvania and four resulting series of publications:

First Survey, 1836-1854: Publications—6 annual reports, 2 quarto-volumes, and a state geologic map.

Second Survey, 1874-1887: Publications—81 volumes, 35 atlases, and a grand atlas.

Third (Commission) Survey, 1899-1919: Publications—6 biennial reports and 12 economic reports listed in this pamphlet.

Fourth Survey, 1919- : Publications listed in this pamphlet (fourth series).

All reports of the first three geological surveys and some of the reports of the present (fourth) survey are out of print.

SOURCES OF OUT-OF-PRINT REPORTS

Many reports appearing in this list of publications are marked with an asterisk (*) indicating that they are out of print and no longer available for distribution. Out-of-print reports are available for study in many libraries throughout the state, particularly those in larger cities and at colleges.

The library of the Pennsylvania Geological Survey in Harrisburg is open for public use and contains all previous Pennsylvania Survey reports, as well as most of the U. S. Geological Survey, U. S. Bureau of Mines, and other governmental and institutional reports.

BIBLIOGRAPHIES OF PENNSYLVANIA GEOLOGY

For a complete annotated listing of all publications dealing with Pennsylvania geology, including journal articles and nongovernmental publications, please refer to the following General Geology Reports published by the Pennsylvania Survey:

- G 34 **Annotated bibliography of Pennsylvania geology to 1949**, by H. R. Cramer
- G 42 **Annotated bibliography of Pennsylvania geology—supplement to 1959**, by H. R. Cramer
- G 61 **Annotated bibliography of Pennsylvania geology—supplement to 1969**, by H. R. Cramer

MAP SCALES

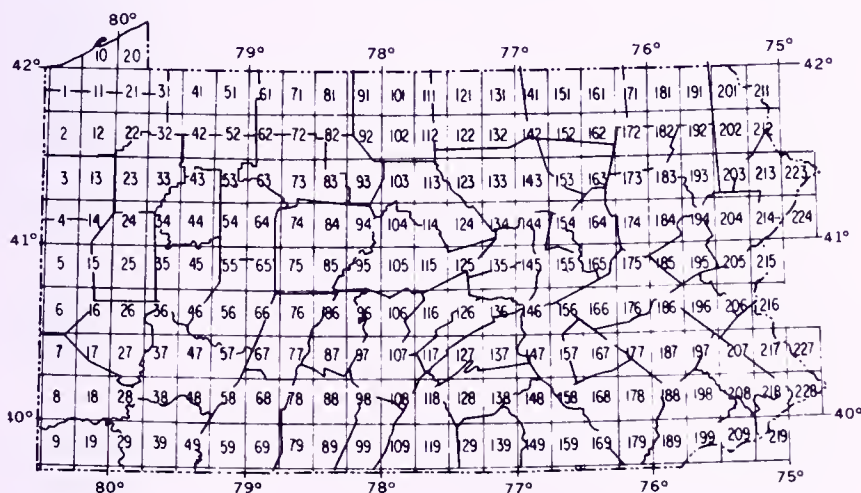
The list below shows map scales referred to on the following pages and indicates equivalent distances on the maps:

SCALE	EQUIVALENT DISTANCES ON MAPS
1:6,000	1 inch = 500 feet
1:12,000	1 inch = 1,000 feet
1:16,000	1 inch = 1,333 feet
1:24,000	1 inch = 2,000 feet
1:48,000	1 inch = 4,000 feet
1:50,000	1 inch = 4,167 feet
1:62,500	1 inch = approx. 1 mile
1:125,000	1 inch = approx. 2 miles
1:250,000	1 inch = approx. 4 miles
1:380,160	1 inch = approx. 6 miles
1:1,000,000	1 inch = approx. 16 miles
1:2,500,000	1 inch = approx. 39.5 miles

Other map scales cited in the List of Publications are followed by their equivalent distances.

QUADRANGLE NUMBERING SYSTEM

(Based on 15-minute quadrangles)



LIST OF PUBLICATIONS

PENNSYLVANIA GEOLOGICAL SURVEY

Fourth Series

Order free publications from the Pennsylvania Geological Survey, Department of Environmental Resources, P. O. Box 2357, Harrisburg, PA 17120, and priced publications from the Department of General Services, State Book Store, P. O. Box 1365, Harrisburg, PA 17125.

ATLAS SERIES Map scale 1:24,000 unless otherwise indicated. Quadrangle names refer to 7½-minute series unless otherwise indicated.

- | | | |
|--------|--|--------|
| A 5 | New Castle 15' quadrangle , Lawrence and Beaver Counties, F. W. DeWolf. 1929. 238 p., 18 pls., bedrock geol. map, surficial geol. map, econ. geol. map, scale 1:62,500 | \$1.00 |
| A 27 | Pittsburgh 15' quadrangle , Allegheny and Westmoreland Counties, M. E. Johnson. 1928; 3rd printing, 1974. 236 p., 33 pls., geol. map, min. resource map, scale 1:62,500 | 8.75 |
| A 33a | Oil City quadrangle , A. N. Ward, Jr., and others (in preparation) | |
| A 36 | Freeport 15' quadrangle , Armstrong, Westmoreland, Allegheny, and Butler Counties, H. H. Hughes. 1933. 272 p., 9 pls., geol. map, scale 1:62,500 | 1.75 |
| A 37 | Greensburg 15' quadrangle , Westmoreland and Allegheny Counties, M. E. Johnson. 1925; 3rd printing, 1974. 162 p., 13 pls., geol. map, econ. geol. map, scale 1:62,500 | 6.00 |
| A 48 | Donegal 15' quadrangle , Westmoreland, Fayette, and Somerset Counties, M. N. Shaffner. 1963. 116 p., 4 pls., geol. map, coal reserve maps, scale 1:62,500 | 3.20 |
| A 54 | Brookville 15' quadrangle , Jefferson and Clarion Counties, C. K. Graeber and R. M. Foose. 1942; 3rd printing, 1974. 136 p., 16 pls., geol. map, min. resource map, scale 1:62,500 | 7.00 |
| A 55 | Smicksburg 15' quadrangle , Jefferson, Indiana, and Armstrong Counties, M. N. Shaffner. 1946; 2nd printing, 1969. 252 p., 11 pls., geol. map, min. resource map, scale 1:62,500 | 8.75 |
| A 57 | New Florence 15' quadrangle , Indiana, Westmoreland, Cambria, and Somerset Counties, M. N. Shaffner. 1958. 165 p., 13 pls., geol. and min. resource map, scale 1:62,500; coal reserve maps, scale approx. 1:84,000 (¾ in. = approx. 1 mi) | 4.80 |
| A 64 | DuBois 15' quadrangle , Jefferson and Clearfield Counties, A. D. Glover and W. A. Bragonier (in press) | |
| A 65 | Punxsutawney 15' quadrangle , Jefferson, Indiana, and Clearfield Counties, G. H. Ashley. 1926; 2nd printing, 1969. 145 p., 6 pls., geol. map, min. resource map, scale 1:62,500 | 7.00 |
| A 74ab | Sabula and Penfield quadrangles , Clearfield, Elk, and Jefferson Counties, T. M. Berg and A. D. Glover. 1976. 98 p., 10 pls., geol. map, scale 1:24,000; coal reserve map, foundation and excavation map, scale 1:48,000 | 18.80 |
| A 74cd | Penfield 15' quadrangle (southern half), Clearfield County, W. E. Edmunds and T. M. Berg. 1971; 2nd printing, 1973. 184 p., 22 pls., geol. map, scale 1:24,000; coal reserve maps, foundation and excavation map, scale 1:48,000 | 8.60 |
| A 75 | Curwensville 15' quadrangle , Clearfield County, G. H. Ashley. 1940; 3rd printing, 1974. 140 p., 4 pls., geol. map, min. resource map, scale 1:62,500 | 6.00 |

A 84cd	Clearfield 15' quadrangle (southern half), Clearfield County, A. D. Glover. 1970; 2nd printing, 1973. 139 p., 15 pls., geol. map, scale 1:24,000; coal reserve maps, foundation and excavation map, scale 1:48,000	7.40
A 85ab	Houtzdale 15' quadrangle (northern half), Clearfield County, W. E. Edmunds. 1968; 2nd printing, 1973. 150 p., 15 pls., geol. map, scale 1:24,000; coal reserve maps, scale 1:48,000	6.60
A 85cd	Ramey and Houtzdale quadrangles , Clearfield and Centre Counties, G. B. Glass and others	(in press)
A 95a	Philipsburg quadrangle , Clearfield and Centre Counties, G. B. Glass. 1972. 241 p., 20 pls., geol. map, scale 1:24,000; coal reserve maps, foundation and excavation map, scale 1:48,000	10.10
A 96	Tyrone 15' quadrangle , Blair, Huntingdon, and Centre Counties, Charles Butts and others. 1939. 118 p., 14 pls., geol. map, scale 1:62,500	*
A 109a	McConnellsburg quadrangle , Fulton and Franklin Counties, K. L. Pierce. 1966; 2nd printing, 1974. 111 p., 3 pls., bedrock geol. map, surficial geol. map	4.15
A 119ab	Northeastern Franklin County , S. I. Root. 1971; 2nd printing, 1974. 104 p., 2 pls., geol. map	3.85
A 119cd	Southeastern Franklin County , S. I. Root. 1968. 118 p., 1 pl., geol. map	3.30
A 124a	Lock Haven quadrangle , Clinton County, A. R. Taylor	(in press)
A 126	Mifflintown 15' quadrangle , Juniata, Mifflin, and Snyder Counties, R. R. Conlin and D. M. Hoskins. 1962. 46 p., 2 pls., geol. map ..	4.75
A 127	Loysville 15' quadrangle , Perry, Juniata, and Cumberland Counties, J. T. Miller. 1961. 47 p., 2 pls., geol. map	8.85
A 129a	Caledonia Park quadrangle and adjoining areas , Adams, Cumberland, and Franklin Counties, J. L. Fauth. 1968. 133 p., 7 pls., geol. map	2.85
A 129c	Iron Springs quadrangle , Adams and Franklin Counties, J. L. Fauth	(in preparation)
A 133cd	Salladasburg and Cogan Station quadrangles , Lycoming County, R. T. Faill and others	(in press)
A 134ab	Linden and Williamsport quadrangles , Lycoming County, R. T. Faill and others	(in press)
A 136	Millerstown 15' quadrangle , Perry, Juniata, and Snyder Counties, R. T. Faill and R. B. Wells. 1974. 276 p., 6 pls., geol. map, scale 1:24,000; tectonic and environ. map, scale 1:48,000	23.00
A 137ab	New Bloomfield 15' quadrangle (northern half), Perry County, J. L. Dyson. 1963. 63 p., 1 pl., geol. map	2.55
A 137cd	New Bloomfield 15' quadrangle (southern half), Perry and Cumberland Counties, J. L. Dyson. 1967; 2nd printing, 1974. 86 p., 1 pl., geol. map	4.30
A 138ab	Carlisle and Mechanicsburg quadrangles , Cumberland County, S. I. Root	(in preparation)
A 143cd	Montoursville North and Huntersville quadrangles , Lycoming County, R. B. Wells	(in preparation)
A 144ab	Montoursville South, Muncy, and Hughesville quadrangles , Lycoming, Northumberland, and Montour Counties, R. T. Faill ..	(in preparation)
A 146	Millersburg 15' quadrangle , Dauphin, Juniata, Northumberland, Perry, and Snyder Counties, D. M. Hoskins. 1976. 38 p., 2 pls., geol. map	12.80

A 148ab	Harrisburg West area , Cumberland and York Counties, S. I. Root (in press)	
A 157d	Palmyra quadrangle , Lebanon and Dauphin Counties, A. R. Geyer. 1970. 46 p., 1 pl., geol. map	2.85
A 167c	Lebanon quadrangle , Lebanon County, A. R. Geyer and others. 1958. Geol. map, text on reverse	1.90
A 167d	Richland quadrangle , Lebanon and Lancaster Counties, Carlyle Gray and others. 1958. Geol. map, text on reverse	1.80
A 168	Lancaster 15' quadrangle , Lancaster and Lebanon Counties, A. I. Jonas and G. W. Stose. 1930. 106 p., 23 pls., geol. map, scale 1:62,500	1.00
A 174c	Berwick quadrangle , Luzerne and Columbia Counties, J. D. Inners (in preparation)	
A 177c	Womelsdorf quadrangle , Lancaster, Lebanon, and Berks Counties, A. R. Geyer and others. 1963. 96 p., 1 pl., geol. map	2.85
A 177d	Sinking Spring quadrangle , Berks and Lancaster Counties, D. B. MacLachlan and others. 1975. 228 p., 3 pls., geol. map, scale 1:24,000; tectonic map, scale 1:63,360 (1 in. = 1 mi)	17.50
A 178	New Holland 15' quadrangle , Lancaster County, A. I. Jonas and G. W. Stose. 1926; 2nd printing, 1969. 40 p., 7 pls., geol. map, scale 1:62,500	3.50
A 187ab	Fleetwood and Temple quadrangles , Berks County, D. B. MacLachlan (in preparation)	
A 194cd	Hickory Run and Blakeslee quadrangles , Carbon and Monroe Counties, W. D. Sevon. 1975. Bedrock geol. map with text on reverse, surficial geol. map	9.10
A 195ab	Christmans and Pohopoco Mountain quadrangles , Carbon and Monroe Counties, W. D. Sevon. 1975. Bedrock geol. map with text on reverse, surficial geol. map with text on reverse	11.20
A 195cd	Lehigh and Palmerton quadrangles , Carbon, Northampton, and Lehigh Counties, J. B. Epstein and others. 1974. 460 p., 4 pls., bedrock geol. map, surficial geol. map	24.00
A 197	Boyetown 15' quadrangle , Berks, Montgomery, and Lehigh Counties, T. V. Buckwalter. 1959. 15 p., 1 pl., geol. map	3.20
A 204ab	Tobyhanna and Buck Hill Falls quadrangles , Monroe and Wayne Counties, W. D. Sevon. 1975. Bedrock geol. map with text on reverse, surficial geol. map	10.10
A 204cd	Pocono Pines and Mt. Pocono quadrangles , Monroe County, T. M. Berg and others. Bedrock geol. map, surficial geol. map . . . (in press)	
A 205a	Brodheadsville quadrangle , Monroe County, T. M. Berg. 1975. 60 p., 3 pls., bedrock geol. map, surficial geol. map	9.50
A 206	Allentown 15' quadrangle , Northampton, Lehigh, and Bucks Counties, B. L. Miller. 1925. 195 p., 15 pls., geol. and econ. geol. map, scale 1:62,500	*
A 214a	Skytop quadrangle , Monroe and Pike Counties, W. D. Sevon and T. M. Berg (in press)	
A 214c	East Stroudsburg quadrangle , Monroe County, M. F. Bucek. 1971; 2nd printing, 1974. 40 p., 1 pl., geol. map	2.65
A 223	Milford and Port Jervis 15' quadrangles (Pennsylvania portion), Pike County, F. W. Fletcher and D. L. Woodrow. 1970. 64 p., 2 pls., geol. map, scale 1:62,500	2.10

* Out-of-print.

COUNTY REPORTS Map scale 1:62,500 unless otherwise stated. County reports are numbered alphabetically within the commonwealth.

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|---|-----|--|---|------------------|
| C | 1 | Geology and mineral resources of Adams County , G. W. Stose. 1932. 153 p., 26 pls., topo. map, scale 1:62,500; geol. map, scale 1:125,000 | * | |
| C | 1 | Part 2, Mineral resources of Adams County , G. W. Stose. 1925. 61 p., 11 pls. | * | |
| C | 1 | Part 3, Soil survey of Adams County , A. L. Patrick and H. H. Bennett. 1924. 43 p., soils map | * | |
| C | 9 | Geology and mineral resources of Bucks County , Bradford Willard and others. 1959. 243 p., 24 pls., topo. map, geol. map | * | |
| C | 26 | Geology and mineral resources of Fayette County , W. O. Hickok IV and F. T. Moyer. 1940; 2nd printing, 1973. 530 p., 3 pls., topo. map, geol. map, coal map | | 3.25 |
| C | 30 | Geology and mineral resources of Greene County , R. W. Stone. 1932. 175 p., 3 pls., topo. map, geol. map, scale approx. 1:125,000 | * | |
| C | 39 | Lehigh County , B. L. Miller and others. 1941. 492 p., 39 pls., topo. and mine map, geol. map | * | |
| C | 48 | Northampton County , B. L. Miller and others. 1939; 3rd printing, 1973. 496 p., 29 pls., geol. map | | 5.10 |
| C | 52 | Geology and mineral resources of Pike County , W. D. Sevon and others | | (in preparation) |
| C | 56A | Geology and mineral resources of southern Somerset County , N. K. Flint. 1965; 2nd printing, 1973. 267 p., 13 pls., geol. map, coal reserve maps | | 6.75 |
| C | 67 | Geology and mineral resources of York County , G. W. Stose and A. I. Jonas. 1939; 3rd printing, 1973. 199 p., 38 pls., geol. map | | 10.00 |

EDUCATIONAL SERIES

- | | | | |
|----|---|--|------------------|
| ES | 1 | Common rocks and minerals of Pennsylvania , D. M. Lapham and A. R. Geyer. 1962; 7th printing, 1973. 27 p. | free |
| ES | 2 | Common fossils of Pennsylvania , D. M. Hoskins. 1962; 8th printing, 1976. 18 p. | free |
| ES | 3 | Ground water in Pennsylvania , A. E. Becher. 1962; 5th printing, 1973. 42 p. | free |
| ES | 4 | Pennsylvania geology summarized , Bradford Willard. 1962; 7th printing, 1976. 17 p. | free |
| ES | 5 | Geology and the Gettysburg campaign , Andrew Brown. 1962; 3rd printing, 1966. 15 p. | free |
| ES | 6 | Pennsylvania and the ice age , V. C. Shepps. 1962; 4th printing, 1973. 33 p. | free |
| ES | 7 | Coal in Pennsylvania , W. E. Edmunds and E. F. Koppe. 1968; 4th printing, 1976. 29 p. | free |
| ES | 8 | Geology of Pennsylvania's oil and gas , W. R. Wagner and W. S. Lytle. 1969; 2nd printing, 1973. 28 p. | free |
| ES | 9 | Geologic hazards in Pennsylvania , J. P. Wilshusen | (in preparation) |

* Out-of-print.

ENVIRONMENTAL GEOLOGY REPORTS

EG 1	Engineering characteristics of the rocks of Pennsylvania , W. G. McGlade and others. 1972. 200 p.	2.50
EG 2	Environmental geology for land-use planning , A. R. Geyer and W. G. McGlade. 1972. 44 p.	1.40
EG 3	Subsurface liquid waste disposal and its feasibility in Pennsylvania , Neilson Rudd. 1972. 103 p.	2.00
EG 4	Environmental geology of the greater Harrisburg metropolitan area , W. G. McGlade and A. R. Geyer. 1976. 42 p., 7 pls., geol. and min. resource map, drainage and flood-prone area map, soils map, ground-water map, slope map, engineering geology map, scale 1:48,000	17.65
EG 5	Building stones of Pennsylvania's capital area , A. R. Geyer .. (in press)	
EG 6	Greater York area environmental geology , J. P. Wilshusen and M. E. Horne (in preparation)	

GENERAL GEOLOGY REPORTS

G 1	A syllabus of Pennsylvania geology and mineral resources , G. H. Ashley. 1931. 160 p., 2 pls.	*
G 2	Meteorites found in Pennsylvania , R. W. Stone. 1932. Rev. ed., 1967, R. W. Stone and E. M. Starr. 35 p.	0.40
G 3	Pennsylvania caves , R. W. Stone and others. 1930; 2nd ed., 1932. 143 p.	*
G 4	Devonian faunas in Pennsylvania , Bradford Willard. 1932. 43 p. ..	*
G 5	Correlation of Ordovician limestone at Salona, Clinton County , Lawrence Whitcomb. 1932. 16 p.	*
G 6	The scenery of Pennsylvania , G. H. Ashley. 1933. 91 p., 1 pl. ..	*
G 7	Glacial deposits outside the Wisconsin terminal moraine in Pennsylvania , Frank Leverett. 1934; 2nd printing, 1957. 123 p., 1 pl.	1.00
G 8	A Paleozoic section in south-central Pennsylvania , Bradford Willard and A. B. Cleaves. 1938. 37 p., 10 pls.	*
G 9	The geomorphology of the Wyoming-Lackawanna region , H. A. Itter. 1938; 2nd printing, 1959. 82 p., 9 pls.	0.70
G 10	Recent geological history of the Delaware Valley below the Water Gap , Freeman Ward. 1938; 2nd printing, 1962. 76 p., 10 pls. ...	0.55
G 11	A Paleozoic section at Delaware Water Gap , Bradford Willard. 1938. 35 p.	*
G 12	Highway geology, Philadelphia to Pittsburgh , Bradford Willard. 1939. 42 p., 17 pls.	*
G 13	Guide to the geology from Dauphin to Sunbury , Bradford Willard. 1939. 24 p., 7 pls.	*
G 14	Guide to the geology of the upper Schuylkill Valley , Bradford Willard. 1939. 23 p., 1 pl.	*
G 15	Guidebook to the geology near Reading , Bradford Willard and D. M. Fraser. 1939. 27 p.	*
G 16	Guidebook to places of geologic interest in the Lehigh Valley , B. L. Miller. 1939. 47 p.	*
G 17	Guidebook to the geology about Pittsburgh , Henry Leighton. 1939; 2nd ed., 1947. 35 p.	*
G 19	The Devonian of Pennsylvania , Bradford Willard and others. 1939. 481 p.	*

* Out-of-print.

G 20	Guidebook to the geology of the Pennsylvania Turnpike , A. B. Cleaves and G. H. Ashley. 1942. 42 p., 14 pls. (replaced by G 24)	*
G 21	Subsurface Trenton and sub-Trenton rocks in Ohio, New York, Pennsylvania and West Virginia , C. R. Fettke. 1948. 36 p. (reprinted from Am. Assoc. Petroleum Geologists Bull., v. 32, no. 8)	*
G 22	Trenton and sub-Trenton of outcrop areas in New York, Pennsylvania and Maryland , F. M. Swartz. 1948; 2nd printing, 1973. 103 p. (reprinted from Am. Assoc. Petroleum Geologists Bull., v. 32, no. 8)	0.35
G 23	Pleistocene terraces of the Susquehanna River , L. C. Peltier. 1949. 158 p., 46 pls.	*
G 24	Guidebook to the geology of the Pennsylvania Turnpike, Carlisle to Irwin , A. B. Cleaves and R. C. Stephenson. 1949. 72 p., 28 pls., geol. strip maps, scale approx. 1:62,500	0.50
G 25	Subsurface projection of Cambro-Ordovician sediments in the Pennsylvania-New York region , F. M. Swartz. 1950. 18 p. (superseded by G 49)	*
G 26	The Pennsylvanian Mill Creek limestone in Pennsylvania , M. M. Chow. 1951. 36 p., 4 pls.	0.75
G 27	Structure-contour maps of the plateau region of north-central and western Pennsylvania , C. R. Fettke. 1954. 50 p., 3 pls. (superseded by Maps 9 and 14)	*
G 28	Upper Cambrian fossils from Bucks County , B. F. Howell. 1957. 39 p., 5 pls.	*
G 29	Guide to the highway geology from Harrisburg to Bald Eagle Mountain , Bradford Willard and others. 1958. 38 p., 2 pls.	*
G 30	The geology of the Hidden Valley Boy Scout Camp area, Perry County , J. T. Miller. 1957. Rev. ed., 1971, R. B. Wells; 2nd printing, 1973. 45 p., 2 pls., geol. map, scale 1:24,000	0.50
G 31	The Annville, Myerstown and Hershey Formations of Pennsylvania , C. E. Prouty. 1959. 47 p., 1 pl.	0.30
G 32	Glacial geology of northwestern Pennsylvania , V. C. Shepps. 1959. 59 p., 1 pl., glacial map, scale 1:125,000	1.30
G 33	Mineral collecting in Pennsylvania , 4th ed. A. R. Geyer and others. 1976. 260 p.	1.60
G 34	Annotated bibliography of Pennsylvania geology to 1949 , H. R. Cramer. 1961; 2nd printing, 1974. 453 p.	5.75
G 35	Guide to the geology of Cornwall, Pennsylvania , Carlyle Gray and D. M. Lapham. 1961. 18 p., 2 pls., geol. map, scale 1:9,600 (1 in. = 800 ft)	0.30
G 36	Stratigraphy and paleontology of the Bloomsburg Formation of Pennsylvania and adjacent states , D. M. Hoskins. 1961. 125 p., 8 pls.	2.75
G 37	Stratigraphy of the Beekmantown Group in southeastern Pennsylvania , J. P. Hobson, Jr. 1963; 2nd printing, 1974. 331 p.	3.35
G 38	Lithostratigraphy of the Middle Ordovician Salona and Coburn Formations in central Pennsylvania , R. R. Thompson. 1963; 2nd printing, 1974. 154 p.	1.55
G 39	Symposium on Middle and Upper Devonian stratigraphy of Pennsylvania and adjacent states , V. C. Shepps, ed. 1963. Collected papers by 25 authors. 301 p.	2.05
G 40	Fossil collecting in Pennsylvania , D. M. Hoskins. 1964; 3rd printing, 1973. 126 p., 10 pls.	0.50

* Out-of-print.

G 41	Guidebook to the geology of the Philadelphia area , B. K. Goodwin. 1964. 189 p.	0.70
G 42	Annotated bibliography of Pennsylvania geology—supplement to 1959 , H. R. Cramer. 1965. 237 p.	2.30
G 43	Provenance, dispersal, and depositional environments of Triassic sediments in the Newark-Gettysburg Basin , J. D. Glaeser. 1966; 2nd printing, 1974. 168 p., 9 pls., geol. map, scale approx. 1:633,600 (1 in. = approx. 10 mi)	6.25
G 44	Structure and stratigraphy of the limestones and dolomites of Dauphin County , D. B. MacLachlan. 1967; 2nd printing, 1974. 168 p., 1 pl., geol. and tectonic map, scale 1:24,000	3.75
G 45	Structure of the Jacksonburg Formation in Northampton and Lehigh Counties , W. C. Sherwood. 1964. 64 p., 1 pl., geol. map, scale 1:62,500	1.95
G 46	Geologic investigations of the Pennsylvania Piedmont (collected reprints). 1964; 2nd printing, 1973. 47 p., 6 pls.	0.35
G 47	Stratigraphy of Lower Ordovician Nittany Dolomite in central Pennsylvania , A. R. Spelman. 1966. 187 p., 24 pls.	2.35
G 48	Stratigraphy and paleontology of the Mahantango Formation in south-central Pennsylvania , R. L. Ellison. 1965; 2nd printing, 1974. 298 p., 19 pls.	2.40
G 49	Stratigraphy of the Cambrian to Middle Ordovician rocks of central and western Pennsylvania , W. R. Wagner. 1966; 2nd printing, 1974. 156 p., 7 pls.	3.75
G 50	Guide to the Horseshoe Curve section between Altoona and Gallitzin, central Pennsylvania , F. M. Swartz. 1965. 58 p.	0.35
G 51	Stratigraphy of the Devonian Trimmers Rock in eastern Pennsylvania , L. A. Frakes. 1967. 208 p., 1 pl.	2.70
G 52	Stratigraphy of the Lower Ordovician Axemann limestones in central Pennsylvania , J. A. Lees. 1967; 2nd printing, 1974. 79 p., 19 pls.	1.00
G 53	A lithostratigraphic, petrographic and chemical investigation of the lower Middle Ordovician carbonate rocks in central Pennsylvania , Morris Roncs. 1969. 224 p., 8 pls.	3.00
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M 66	Analyses and measured sections of Pennsylvania bituminous coals , R. D. Sponseller. 1973. 479 p.	6.30
M 67	Greater Pittsburgh Region construction aggregates , B. J. O'Neill, Jr. 1974. 60 p., 3 pls., showing sand and gravel occurrences and sources of construction aggregate, scale 1:125,000	5.00
M 68	Bituminous coal resources in western Pennsylvania , compiled by M. A. Sholes and V. W. Skema. 1974; 2nd printing, 1975. 13 coal distribution maps, scale 1:250,000	5.30
M 69	Analyses and measured sections of Pennsylvania bituminous coals, Part II , V. W. Skema and others. 1975. 306 p.	4.00
M 70	Oil fields of the Greater Pittsburgh Region , W. S. Lytle. 1976. 119 p.	1.65
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M 73	Tully (Middle Devonian) to Queenston (Upper Ordovician) correlations in the subsurface of western Pennsylvania , Louis Heyman (in press)	
M 74	Analyses and measured sections of Pennsylvania bituminous coals, Part III , V. W. Skema and others (in press)	
M 75	The economic geology of the Upper Freeport coal in the New Stanton area of Westmoreland County: A model study of coal exploration , M. A. Sholes and others (in press)	

MISCELLANEOUS PAPERS

1	The story of the Survey , G. H. Ashley. 1920. 20 p.	*
2	The work of the Survey, 1919-1922 , G. H. Ashley. 1923. 18 p. ..	*
3	The Pennsylvania Geological Survey, administrative report , G. H. Ashley. ;1931. 38 p.	*
4	The resources of Pennsylvania in a nutshell , G. H. Ashley. 1931. 15 p.	*

* Out-of-print.

- 5 **Fifteen years, Sept. 1, 1919, to Sept. 1, 1934**, G. H. Ashley. 1934. 8 p. *
- 6 **A quarter century of progress**, G. H. Ashley. 1944. 10 p. *

OPEN FILE REPORTS (Available for cost of copying, see p. 3 for ordering instructions)

A list of open file reports of the Pennsylvania Geological Survey may be obtained by writing to the Survey.

PARK GUIDES

- PG 1 **Trough Creek State Park: ice mine and balanced rock**, J. P. Wilshusen. 1969 free
- PG 2 **Hickory Run State Park: Hickory Run boulder field**, A. R. Geyer. 1969 free
- PG 3 **Archbald Pothole State Park: Archbald pothole**, W. G. McGlade. 1969 free
- PG 4 **Moraine State Park**, W. S. Lytle. 1970 free
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- PG 7 **Ohiopyle State Park: geologic features of interest**, K. O. Bushnell. 1971 free
- PG 8 **Valley Forge State Park: history of the rocks**, P. L. Samson. 1974 free
- PG 9 **McConnells Mill State Park: Slippery Rock Creek gorge**, K. O. Bushnell. 1975 free

PROGRESS REPORTS

- PR 1-105 Mimeographed series of reports, all out of print, many superseded. See G 1 for partial list *
- PR 106 **Gas and oil in Potter Co.**, S. H. Cathcart. 1934. 31 p. *
- PR 107 **Gas in Tioga County**, S. H. Cathcart and T. H. Myers. 1934. 42 p. *
- PR 108 **Geologic structure in the plateaus region of northern Pennsylvania and its relation to the occurrence of gas in the Oriskany sand**, S. H. Cathcart. 1934. 24 p. (replaced by PR 138) *
- PR 109 **The possibility of finding gas in Cameron County**, S. H. Cathcart. 1934. 16 p. "
- PR 110 **The possible occurrence of gas in the Oriskany sand of Elk County**, S. H. Cathcart. 1934. 21 p. *
- PR 111 **Possibility of finding gas in the Oriskany sand of McKean County**, S. H. Cathcart. 1934. 13 p. *
- PR 112 **The white clays of Pennsylvania**, Henry Leighton. 1934. 19 p. (see M 17 and M 23) *
- PR 113 **Pennsylvania geology summarized**, Bradford Willard. 1935. 4th ed., 1962, reprinted as ES 4 *
- PR 114 **Subsurface stratigraphy of northwestern Pennsylvania and a resume of gas and oil possibilities of deeper sands**, C. R. Fettke. 1935. 23 p. *

* Out-of-print.

PR 115	Structure and stratigraphy of Fayette County (preliminary rept.), F. T. Moyer. 1937. 20 p., 1 map (see C 26)	*
PR 116	Bradford oil field (preliminary rept.), C. R. Fettke. 1937. 17 p. (see M 21)	*
PR 117	Supplementary record of "deep sand" wells in Pennsylvania , S. H. Cathcart. 1937. 27 p.	*
PR 118	Geology of the oil and gas fields in the Tidioute quadrangle (adv. rept.), S. H. Cathcart and others. 1938. 15 p., 6 maps, 181 well records	*
PR 119	The Canadian System , G. H. Ashley. 1938. 7 p.	*
PR 120	Structure and stratigraphy of the Brookville quadrangle (preliminary rept.), C. K. Graeber. 1939. 9 p. (replaced by A 54)	*
PR 121	Structure and stratigraphy of the Smicksburg quadrangle (preliminary rept.), M. N. Shaffner. 1939. 12 p. (replaced by A 55) . .	*
PR 122	Geology of the oil and gas fields of the Hilliards quadrangle , R. E. Sherrill and L. S. Matteson. 1939. 25 p., 4 maps, 238 well records .	0.15
PR 123	Oil mining possibilities in Pennsylvania , P. A. Dickey. 1939. 31 p. . .	*
PR 124	Summit gas pool, Fayette County , C. R. Fettke. 1940. 21 p. . . .	*
PR 125	Music Mountain oil pool and other oil pools in Lafayette Township, McKean County , C. R. Fettke. 1941. 34 p.	*
PR 126	The Upper Devonian and Lower Mississippian of southwestern Pennsylvania , W. M. Laird. 1941. 23 p.	*
PR 127	Subsurface sections across western Pennsylvania , C. R. Fettke. 1941; 2nd printing, 1956. 51 p., 1 map	0.50
PR 128	Manganese minerals in Pennsylvania , R. M. Foose. 1942. 22 p. (see M 27)	*
PR 129	Electrical well logging in the eastern states , P. A. Dickey. 1942. 30 p.	*
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PR 131	Haskell sand core from the Coryville pool, McKean County , C. R. Fettke and W. H. Seifert. 1946. 9 p. (a limited edition for the oil industry)	*
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PR 133	Gas in Leidy Township, Clinton County , S. H. Cathcart. 1950. 15 p. .	*
PR 134	Preliminary report, Leidy gas field and adjacent areas, Clinton County , J. R. Ebright and A. I. Ingham. 1951. 1 sheet (replaced by M 34)	*
PR 135	Oil and gas developments in Pennsylvania in 1950 , C. R. Fettke. 1951. 10 p., 1 pl.	*
PR 136	Preliminary report on certain limestones and dolomites of Berks County , Carlyle Gray. 1951. 85 p., 1 pl., map of principal limestone areas, scale 1:125,000	0.50
PR 137	Preliminary report, geology and mineral resources of the New Florence quadrangle , M. N. Shaffner. 1951. (replaced by A 57) .	*
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* Out-of-print.

PR 139	Oil and gas developments in Pennsylvania in 1951 , C. R. Fettke. 1952. 20 p., 2 pls.	*
PR 140	The high calcium limestones of the Annville belt in Lebanon and Berks Counties , Carlyle Gray. 1952. 17 p., 2 pls., geol. maps, scales 1:62,500 and 1:9,600 (1 in. = 800 ft)	0.50
PR 141	Preliminary report, geology and mineral resources of the Donegal quadrangle , M. N. Shaffner. 1952. (replaced by A 48)	*
PR 142	Preliminary report, geologic structure of parts of the Chestnut Ridge and Driftwood anticlines in Clearfield and Elk Counties , R. C. Bolger. 1953. Map with text on back, scale 1:62,500	0.30
PR 143	Oil and gas developments in Pennsylvania in 1952 , C. R. Fettke. 1953. 30 p., 3 pls.	0.25
PR 144	Oil and gas developments in Pennsylvania in 1953 , C. R. Fettke. 1954. 15 p., 2 pls.	0.20
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PR 147	Developments in Pennsylvania in 1954 (reprinted from Am. Assoc. Petroleum Geologists Bull., v. 39, no. 6), C. R. Fettke and W. S. Lytle. 1955. 11 p.	*
PR 148	Summary secondary recovery operations in Pennsylvania to January 1, 1954 including petroleum reserves and production by counties , W. S. Lytle. 1955. 23 p.	0.15
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PR 153	Preliminary report on the chromite occurrence at the Wood Mine , D. M. Lapham. 1958; 2nd printing, 1974. 11 p., 2 pls.	free
PR 154	Oil and gas developments in Pennsylvania in 1957 , W. S. Lytle and others. 1958. 46 p., 5 pls.	*
PR 155	Oil and gas developments in Pennsylvania in 1958 , W. S. Lytle and others. 1959. 44 p., 6 pls.	*
PR 156	Subsurface Cambro-Ordovician stratigraphy of northwestern Pennsylvania and bordering states , W. R. Wagner. 1961. 22 p., 1 pl. (replaced by G 49)	*
PR 157	Oil and gas developments in Pennsylvania in 1959 , W. S. Lytle and others. 1960. 55 p., 6 pls.	*
PR 158	Oil and gas developments in Pennsylvania in 1960 , W. S. Lytle and others. 1961. 50 p., 7 pls.	*

PR 159	Some geological factors affecting the Upper Freeport coal and its quality , E. F. Koppe. 1961. 5 p. (reprinted from AIME Transactions (Mining), 1960, v. 217)	*
PR 160	Oil and gas developments in Pennsylvania in 1961 , W. S. Lytle and others. 1962. 55 p., 9 pls.	*
PR 161	The Precambrian geology of the Reading 15' quadrangle , T. V. Buckwalter. 1962. 49 p., 2 pls., geol. map, scale 1:24,000	1.75
PR 162	Oil and gas developments in the Youngsville-Sugar Grove field of Warren County , W. H. Seifert and W. S. Lytle. 1963. 13 p. (replaced by M 53)	*
PR 163	Preliminary report of the oil and gas resources of the Warren 7½' quadrangle , W. S. Lytle and L. A. Heeren. 1963. One sheet containing map and text (replaced by M 52)	*
PR 164	Bedrock geology and structure surface of the Cedar Run quadrangle, Tioga and Lycoming Counties , G. W. Colton. 1963. One sheet containing text and geol. map, scale 1:24,000	1.05
PR 165	Oil and gas developments in Pennsylvania in 1962 , W. S. Lytle and others. 1963. 44 p.	0.30
PR 166	Oil and gas developments in Pennsylvania in 1963 , W. S. Lytle and others. 1964. 47 p.	0.40
PR 167	Bedrock geology of the Slate Run quadrangle, Clinton, Lycoming, and Potter Counties , G. W. Colton and S. J. Luft. 1965. One sheet containing text and geologic map, scale 1:24,000	1.10
PR 168	Oil and gas developments in Pennsylvania in 1964 , W. S. Lytle and others. 1965. 55 p.	0.50
PR 169	Geology of a portion of the Mount Holly Springs quadrangle, Adams and Cumberland Counties , Jacob Freedman. 1967; 2nd printing, 1974. 66 p., 3 pls., geol. map, scale 1:24,000	2.50
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PR 171	Hydrology of the carbonate rocks of the Lancaster 15-minute quadrangle , Harold Meisler and A. E. Becher. 1966. 36 p., 1 pl. (replaced by W 26)	1.15
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PR 184	Oil and gas developments in Pennsylvania in 1971 , W. S. Lytle and Louis Heyman. 1972. 39 p.	0.80
PR 185	Middle Devonian stratigraphy in central Pennsylvania , R. T. Faill and others (in preparation)	
PR 186	Oil and gas developments in Pennsylvania in 1972 , W. S. Lytle. 1973. 36 p.	2.20
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PR 190	Oil and gas developments in Pennsylvania in 1976 (in press)	
SPECIAL BULLETINS (13½ x 18 inches) Map scales 1:24,000 unless otherwise indicated.		
SB 1	Oil-bearing sands in southwestern Pennsylvania , L. S. Matteson and D. A. Busch. 1944. 16 p., 55 pls.	1.50
SB 2	Oil and gas field farm line maps of the Franklin and Oil City quadrangles , compiled by P. A. Dickey and L. S. Matteson. 1945; 2nd printing, 1957. 18 maps	0.65
SB 3	Oil and gas field property line maps of the Hilliards quadrangle , compiled by R. E. Sherrill. 1946; 2nd printing, 1965. 9 maps.	0.60
SB 4	Oil and gas field property line maps of the Titusville quadrangle , collected by P. A. Dickey and compiled by L. A. Heeren. 1946; 2nd printing, 1965. 9 maps	0.60
SB 5	Oil and gas field atlas of the Bradford quadrangle , compiled by C. R. Fettke and Virginia Fairall. 1951. 10 maps, 2 tables	1.25
SB 6	Oil and gas field atlas of the Smethport quadrangle , compiled by C. R. Fettke and others. 1951. 10 maps, 2 tables	1.25
SB 7	Oil and gas field atlas of the Butler quadrangle , compiled by W. S. Lytle and L. A. Heeren. 1955. 10 maps, 2 tables	1.25
SB 8	Preliminary report on a regional stratigraphic study of Devonian rocks of Pennsylvania , T. H. Jones and A. S. Cate. 1957. 5 p., 7 pls., scale 1:1,000,000	1.75

SB 9	Oil and gas field atlas of the Foxburg quadrangle , compiled by J. M. Bergsten and L. A. Heeren. 1961. 26 p., 9 maps, 4 pls. . .	3.00
SB 10	Stratigraphic studies of the Silurian rocks of Pennsylvania, Part 1, Stratigraphic cross sections of Lower Devonian and Silurian rocks in western Pennsylvania and adjacent areas , A. S. Cate. 1961. 3 p., 5 pls.	1.75
SB 11	Stratigraphic studies of the Silurian rocks of Pennsylvania, Part 2, Subsurface maps of the Silurian rocks of western Pennsylvania and adjacent areas , A. S. Cate. 1965. 8 p., 9 pls., scale 1:1,000,000	2.10

WATER RESOURCE REPORTS

W 1	Ground water in southwestern Pennsylvania , A. M. Piper. 1933. 406 p., 1 pl., geol. and structure map, scale 1:380,160	1.50
W 2	Ground water in southeastern Pennsylvania , G. M. Hall. 1934; 3rd printing, 1973. 255 p., 7 pls., geol. map, scale 1:380,160 . .	4.85
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W 15	Geology and hydrology of the Neshannock quadrangle, Mercer and Lawrence Counties , L. D. Carswell and G. D. Bennett. 1963. 90 p., 4 pls., geol. map, scale 1:24,000	4.00
W 16	Geology and hydrology of the Mercer quadrangle, Mercer, Lawrence, and Butler Counties , C. W. Poth. 1963; 2nd printing, 1974. 149 p., geol. map, scale 1:48,000	4.95

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W 43	Summary ground-water resources of Lancaster County , C. W. Poth (in press)	
W 44	Geology and ground-water resources of northern Berks County , C. R. Wood (in preparation)	

WELL SAMPLE RECORDS

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42-55	Superseded by M 40	
#56	Jesse B. Miller No. 1 well, Napier Township, Bedford County , C. R. Fettke. 1960. 43 p.	0.15

SELECTED PUBLICATIONS

Pennsylvania's mineral heritage. Bureau of Statistics, Bureau of Topographic and Geologic Survey, and The Pennsylvania State University, School of Mineral Industries. 1944. 248 p.	0.50
Historical statistics of Pennsylvania's mineral industries, 1759-1955. Bulletin of the Mineral Industries Experiment Station, no. 69. 1957. 94 p.	0.70
Pennsylvania geology. A bimonthly publication issued by the Bureau of Topographic and Geologic Survey. Generally 16 p., illustrated in two colors. Series begins with v. 1, no. 1, August 1969	free

PENNSYLVANIA TOPOGRAPHIC AND GEOLOGIC SURVEY COMMISSION (Third Survey)

SELECTED PUBLICATIONS

Economic Reports

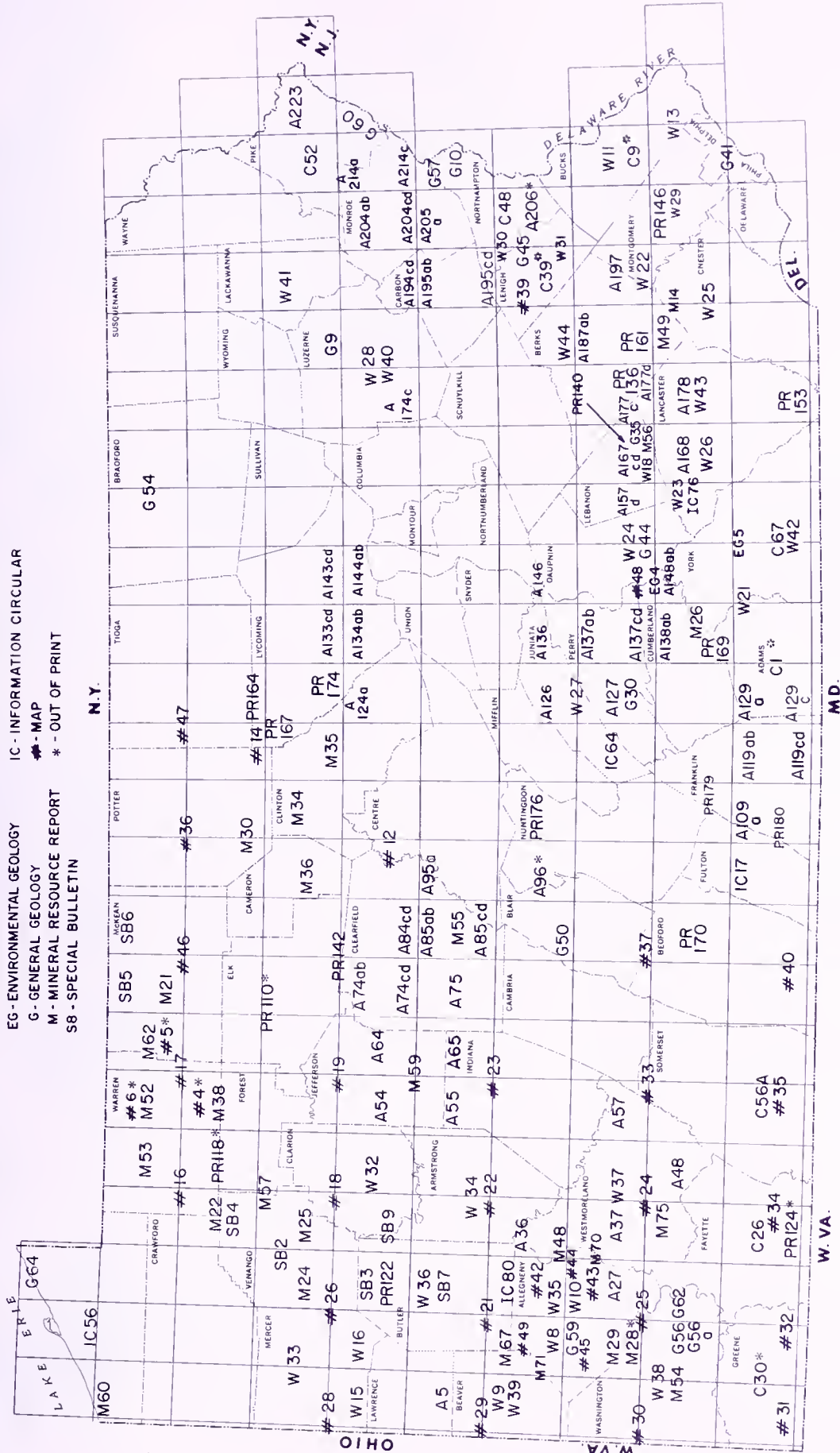
1	Geology of the oil and gas fields in Sewickley quadrangle , M. J. Munn. 1910. 170 p., 10 pls.	*
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| 6 | Graphite deposits of Pennsylvania , B. L. Miller. 1912. 148 p., 17 pls., 1 map * |
| 7 | Engineering data . 1913. 450 p., 3 pls. * |
| 8 | The mineral production of Pennsylvania, 1911 |
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| | Part E. Quarry products, granite, trap rock, sandstone, blue stone, marble, limestone, lime . 84 p. * |
| 9 | Minerals of Pennsylvania , A. P. Brown and Frederick Ehrenfeld. 1913. 160 p., 10 pls. * |
| 10 | The Broad-Top coal field of Huntingdon, Bedford and Fulton Counties , J. H. Gardner. 1913. 81 p., 32 pls. * |
| 11 | The mineral production of Pennsylvania for the year 1913 . 1915. 108 p. * |
| 12 | Glass manufacture and the glass sand industry of Pennsylvania , C. R. Fettke. 1919. 278 p., 108 pls. * |
| Biennial Reports (contain mineral resource data) | |
| | Report of Topographic and Geologic Survey Commission of Pennsylvania, 1910-1912 . 1912. 182 p. * |
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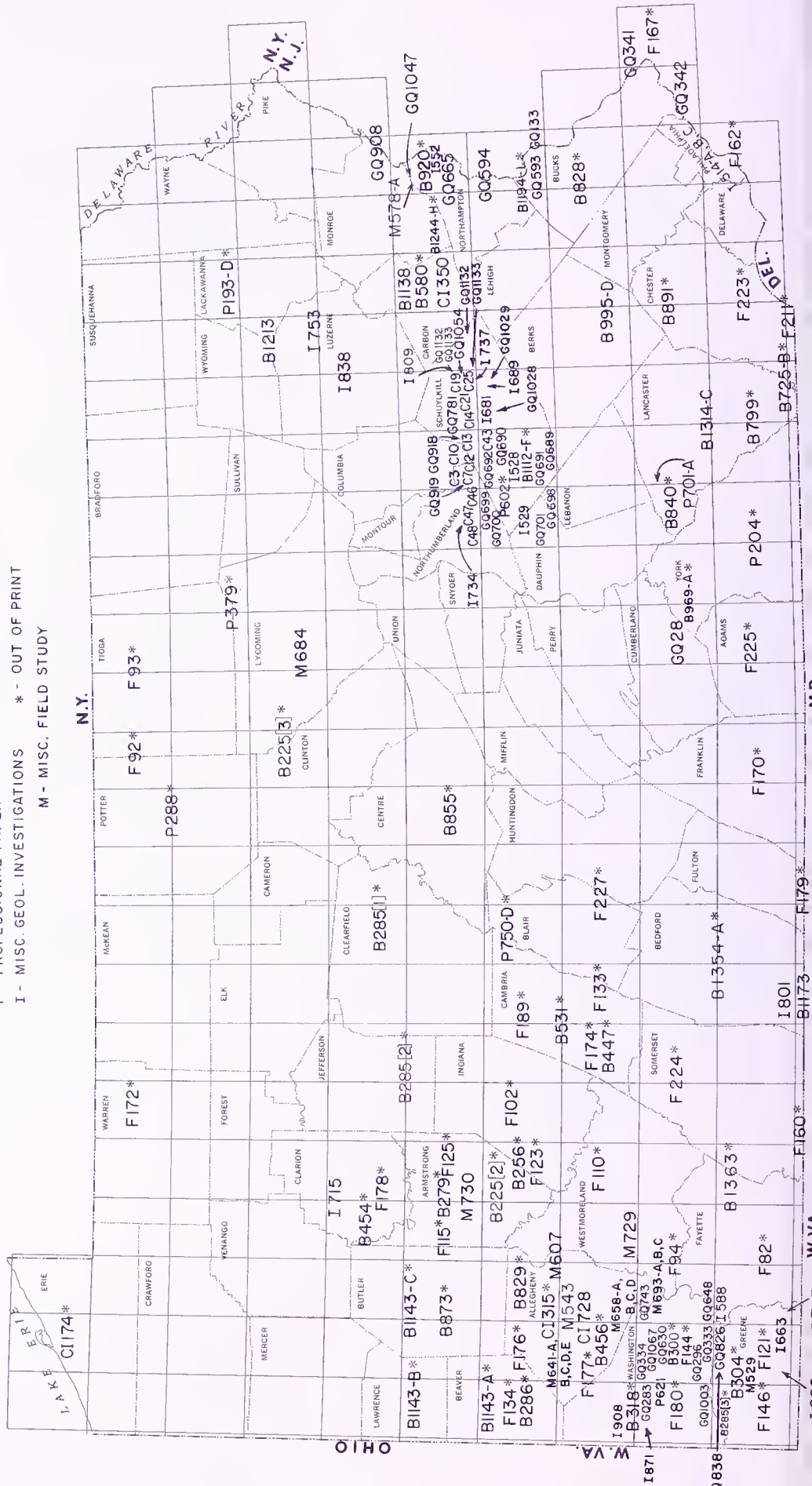
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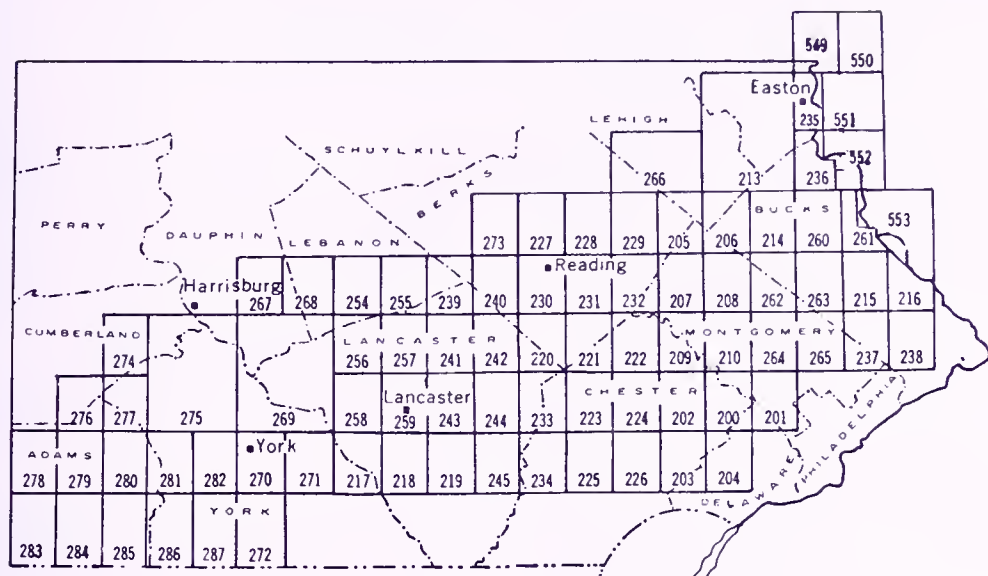
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Pa. Geol. Survey (3rd) : Biennial Report 1913-14

Pa. Geol. Survey (4th) : A127; C1, 9, 48; G33; M50 (3), 56

U. S. Geol. Survey: B136, 430, 828, 891; F162, 225

U. S. Bur. Mines: R4666

Misc.: S. G. Gordon (1922), Mineralogy of Pa.

CRUSHED STONE, see Stone**DOLOMITE, see Limestone****FELDSPAR**

Pa. Geol. Survey (4th) : G1; M13

U. S. Geol. Survey: B1082-K

Misc.: S. G. Gordon (1922), Mineralogy of Pa.

FLAGSTONE, see Stone**FLUORITE**

U. S. Geol. Survey: PP580

Misc.: S. G. Gordon (1922), Mineralogy of Pa.

GANISTER, see Stone**GLASS SAND, see Sand****GOLD**

Pa. Geol. Survey (4th) : M50 (3), 56

Misc.: S. G. Gordon (1922), Mineralogy of Pa.

GRANITE, see Stone**GRAPHITE**

Pa. Geol. Survey (3rd) : 6

Pa. Geol. Survey (4th) : A206; C9, 39

U. S. Geol. Survey: B891, 1082-E

U. S. Bur. Mines: R4530

Misc.: S. G. Gordon (1922), Mineralogy of Pa.

GROUND WATER (Water Resources)

Pa. Geol. Survey (4th) : A5, 27, 36, 37, 48, 54, 55, 57, 65, 74ab, 74cd, 75, 84cd, 85ab, 95a, 96, 109a, 119ab, 119cd, 136, 146, 157d, 168, 177c, 177d, 178, 194cd, 195ab, 195cd, 204ab, 204cd, 205a, 206, 214a, 223; C1, 26, 30, 39, 48, 56A, 67; EG4, 5; ES3; G32, 56, 56a, 59; IC7, 56; Map 20; M47; PR146; W1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44

U. S. Geol. Survey: B256, 300, 447, 828, 840, 855, 873, 891; Cir 174, 315; F102, 121, 123, 133, 144, 146, 162, 167, 170, 172, 174, 177, 179, 180, 189, 223, 224, 225, 227; HA295; MF641-A, 641-B, 641-C; PP204, 381, 417-A; WS106, 108, 109, 110, 1539-H, 1879-H

Misc.: Pa. Office of Resources Management Bull. 2, 3, 8

IRON ORE

Pa. Geol. Survey (4th) : A36, 48, 54, 55, 57, 65, 95a, 96, 109a, 127, 136, 157d, 167c, 168, 177d, 206; C1, 9, 26, 39, 48, 67; G1; M14, 18 (B), 26, 49, 56

U. S. Geol. Survey: B279, 359, 447, 799, 828, 840, 855, 873, 891, 920, 969-A, 995-D, 1082-K, 1173; F82, 93, 115, 121, 125, 162, 170, 223, 224, 225, 227, 279; GQ28; PP204

U. S. Bur. Mines: R4145, 4436

LEAD, see Zinc

LIMESTONE (Dolomite, Marble)

- Pa. Geol. Survey (4th): A5, 27, 36, 37, 48, 54, 55, 57, 65, 74cd, 75, 84cd, 85ab, 95a, 96, 109a, 119ab, 119cd, 126, 127, 129a, 136, 137ab, 137cd, 146, 157d, 167c, 167d, 168, 177c, 177d, 178, 206; C1, 9, 26, 30, 39, 48, 56A, 67; EG1; G1, 22, 26, 31, 37, 38, 44, 45, 47, 49, 52, 53, 56, 56A, 58; IC60, 76; Map 15; M7 15, 20, 50(1, 4), 67; PR136, 140, 170, 171, 179, 180; W1, 2, 5, 6, 7, 11, 15, 16, 18, 25, 26, 27, 29, 31, 32
- U. S. Geol. Survey: B256, 279, 286, 300, 447, 799, 828, 840, 855, 873, 920, 1194-L; F82, 92, 93, 94, 102, 111, 115, 125, 133, 134, 144, 146, 170, 174, 177, 178, 180, 189, 224, 225, 227; PP204, 580, 700-B

MAGNESITE

- U. S. Geol. Survey: B1082-K
- Misc.: S. G. Gordon (1922), Mineralogy of Pa.

MANGANESE

- Pa. Geol. Survey (4th): C1, 39, 48; G33; M26, 27; PR128
- U. S. Geol. Survey: F170, 225; GQ28
- U. S. Bur. Mines: R4312, 4326, 4436
- Misc.: S. G. Gordon (1922), Mineralogy of Pa.

MARBLE, see **Limestone****MICA**

- Pa. Geol. Survey (4th): A177c, 206; G1
- Misc.: S. G. Gordon (1922), Mineralogy of Pa.

MINERAL PIGMENTS (Mineral Paint)

- Pa. Geol. Survey (3rd): 4
- Pa. Geol. Survey (4th): A206; C9, 39, 48

MOLYBDENITE

- Pa. Geol. Survey (3rd): 5, 9
- Pa. Geol. Survey (4th): G33; M50 (3)
- Misc.: S. G. Gordon (1922), Mineralogy of Pa.; A. Montgomery (1969), Mineralogy of Pa., 1922-65

NATURAL GAS, see **Oil and Gas****NICKEL**

- Pa. Geol. Survey (3rd): 8, 9
- Pa. Geol. Survey (4th): G33; M5, 50 (3), 56
- U. S. Geol. Survey: B799
- Misc.: S. G. Gordon (1922), Mineralogy of Pa.

OIL AND GAS (Natural Gas, Petroleum)

- Pa. Geol. Survey (4th): A27, 36, 37, 48, 54, 55, 57, 65, 74ab, 74cd, 75, 84cd, 85ab, 95a, 136, 223; C26, 30, 56A; ES8; G21, 22, 60; IC3, 16, 80; Map 3, 4, 5, 6, 9, 10, 16, 17, 18, 19, 21, 22, 23, 24, 25, 26, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 40, 44, 46, 47; M1, 19, 21, 22, 24, 25, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 45, 46, 52, 53, 54, 57, 59, 60, 62, 65, 70, 73; PR106, 107, 109, 110, 111, 114, 117, 118, 122, 123, 124, 125, 127, 129, 131, 133, 135, 138, 139, 142, 143, 144, 147, 148, 150, 151, 154, 155, 157, 158, 160, 165, 166, 168, 172, 173, 175, 177, 178, 181, 183, 186, 187, 188, 189, 190; SB1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11; WSR56
- U. S. Geol. Survey: B225[3], [4], 256, 279, 285[3], 286, 300, 304, 318, 454, 456, 531, 829, 873, 1173, 1213, 1409; F82, 92, 94, 102, 110, 115, 121, 123, 125, 134, 144, 146, 172, 177, 178, 180, 189; I917-A, 917-B, 917-C, 917-D, 936
- U. S. Bur. Mines: I8473; R3385, 4842, 5438, 6471, 6917, 6942, 6943

PEAT

Pa. Geol. Survey (4th) : A194cd, 204ab, 206, 214c, 223; C48; G57; IC65
 U. S. Geol. Survey: B1317-A; PP580, 700-D

PHOSPHATE

Pa. Geol. Survey (4th) : G33; IC64
 Misc.: S. G. Gordon (1922), Mineralogy of Pa.

PYRITE

Pa. Geol. Survey (3rd) : 9, 11
 Pa. Geol. Survey (4th) : A206; C39; G1, 33; M50 (3), 56
 Misc.: S. G. Gordon (1922), Mineralogy of Pa.

PYROPHYLLITE

U. S. Geol. Survey: PP700-C

QUARTZ (Sand and Vein), see Sand**ROOFING GRANULES**

Pa. Geol. Survey (4th) : C1, 67
 U. S. Geol. Survey: PP580

RUTILE

U. S. Geol. Survey: B624, 1082-K
 Misc.: S. G. Gordon (1922), Mineralogy of Pa.

SALT (Brine)

Pa. Geol. Survey (4th) : G1; M18, 47, 58; PR145
 U. S. Geol. Survey: F110; PP580

SAND (Sand and Gravel, Molding Sand, Glass Sand, Quartz)

Pa. Geol. Survey (3rd) : 12
 Pa. Geol. Survey (4th) : A5, 27, 36, 54, 55, 74cd, 84cd, 85ab, 95a, 96, 109a, 119ab, 119cd, 136, 137ab, 137cd, 168, 177c, 177d, 178, 194cd, 195ab, 195cd, 204ab, 206, 214c, 223; C1, 9, 26, 30, 39, 48; G1, 7, 10, 23, 32, 54, 57, 60, 64; M3, 11, 64, 67
 U. S. Geol. Survey: B279, 286, 447, 799, 828, 840, 855, 873, 891, 1121-B; F82, 94, 115, 162, 167, 172, 177; PP204, 288, 379, 580

SANDSTONE

Pa. Geol. Survey (4th) : A5, 27, 36, 48, 54, 55, 57, 65, 74ab, 74cd, 75, 84cd, 85ab, 95a, 96, 109a, 119cd, 127, 136, 137ab, 137cd, 146, 177c, 194cd, 195ab, 195cd, 204ab, 206, 223; C1, 9, 26, 30, 39, 48, 56A; G1, 54, 63; M3, 15, 67
 U. S. Geol. Survey: B256, 279, 286, 300, 447, 828, 855, 873, 891; F82, 102, 125, 134, 144, 146, 177, 178, 180; PP580

SCHEELITE (Tungsten)

Pa. Geol. Survey (3rd) : 9

SERPENTINE

Pa. Geol. Survey (3rd) : 5
 Pa. Geol. Survey (4th) : C48; G46; IC13, 14; M15; PR153; W2, 25
 U. S. Geol. Survey: B725-B, 920, 1082-K; I476
 Misc.: S. G. Gordon (1922), Mineralogy of Pa.

SHALE, see Clay**SILVER**

Pa. Geol. Survey (3rd) : 9
 Pa. Geol. Survey (4th) : G33; M5, 50 (3), 56, 72
 U. S. Geol. Survey: B799, 855, 1314-C

SLATE

Pa. Geol. Survey (4th): A195cd, 206; C1, 39, 48; G1; IC2; M9, 16, 51, 63
U. S. Geol. Survey: B920, 1082-K; MF578-A; PP580

STONE (Building Stone, Crushed Stone, Gansiter, Granite), see also specific type of stone

Pa. Geol. Survey (4th): A5, 27, 36, 37, 48, 54, 55, 57, 65, 74cd, 75, 84cd, 85ab, 95a, 96, 109a, 119ab, 119cd, 127, 136, 137ab, 137cd, 157d, 167d, 168, 177c, 177d, 178, 194cd, 195ab, 204ab, 206, 214c, 223; C1, 9, 26, 30, 39, 48, 56A, 67; EG5; G44, 54; IC66; M15, 67; PR174
U. S. Geol. Survey: B279, 380, 447, 828, 840, 855, 891; F82, 92, 94, 110, 115, 121, 133, 162, 167, 170, 172, 174, 211, 223, 227, 279; PP204, 580

TALC

Pa. Geol. Survey (3rd): 5
U. S. Geol. Survey: B920, 1082-K
Misc.: S. G. Gordon (1922), Mineralogy of Pa.

THORIUM

Pa. Geol. Survey (4th): G33
Misc.: A. Montgomery (1969), Mineralogy of Pa., 1922-1965

TITANIUM, see **Rutile****TUNGSTEN**, see **Scheelite****URANIUM**

Pa. Geol. Survey (3rd): 9
Pa. Geol. Survey (4th): A195ab, 195cd; G33; IC5; M43; PR152
U. S. Geol. Survey: B1107-D, 1138; Cir 350; PP400-B, 580
Misc.: A. Montgomery (1969), Mineralogy of Pa., 1922-1965

VANADIUM

Pa. Geol. Survey (3rd): 9
Pa. Geol. Survey (4th): M43
U. S. Geol. Survey: B1107-D, 1138
Misc.: S. G. Gordon (1922), Mineralogy of Pa.

VERMICULITE

Pa. Geol. Survey (4th): M18
Misc.: S. G. Gordon (1922), Mineralogy of Pa.

WATER RESOURCES, see **Ground Water****ZINC (Lead)**

Pa. Geol. Survey (3rd): Biennial Report 1910-1912
Pa. Geol. Survey (4th): A96, 168, 206; C9, 26, 39; G33; M5, 50(3)
U. S. Geol. Survey: B855, 891, 920, 1314-C
U. S. Bur. Mines: R4180, 4247, 4422, 4451, 4703, 4743
Misc.: S. G. Gordon (1922), Mineralogy of Pa.



